

Appendix A

Cultural Resources Survey Reports

**PHASE IB CULTURAL RESOURCES SURVEY
OLD ROOSEVELT FIELD
GROUNDWATER CONTAMINATION SITE
VILLAGE OF GARDEN CITY AND
TOWN OF HEMPSTEAD, NASSAU COUNTY
NEW YORK**

SUBCONTRACT NO: 3320-008-004-HS

OCTOBER 2010

**RICHARD GRUBB & ASSOCIATES, INC.
Cultural Resource Consultants**

**Phase IB Cultural Resources Survey
Old Roosevelt Field
Groundwater Contamination Site
Village of Garden City and
Town of Hempstead, Nassau County
New York**

Subcontract No: 3320-008-004-HS

By

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Date: October 11, 2010

MANAGEMENT SUMMARY

OPRHP Project Review Number:

Involved State or Federal Agencies: USEPA

Phase of Survey: IB

Location Information

Location: Tax Parcel Lot 1A, Block 77 along Clinton Road between the intersections of Vanderbilt Court and an unnamed emergency access road.

Minor Civil Division: Village of Garden City, Town of Hempstead

County: Nassau

Survey Area (Metric and English)

Length: Influent/effluent piping, 486.8 meters (1,597.0 feet);

groundwater treatment facility, construction staging area, access road, 109.4 meters (359.0 feet)

Width: Influent/effluent piping easement, 6.1 meters (20.0 feet);

groundwater treatment facility, construction staging area, access road, 3.8 meters (12.5 feet) to 22.9 meters (75.0 feet)

Number of Acres Surveyed: Influent/effluent piping, 0.3 hectares (0.73 acres);

groundwater treatment facility, construction staging area, access road, 0.19 hectares (0.47 acres)

U.S.G.S. 7.5-minute Quadrangle Map: Freeport, NY

Cultural Resources Survey Overview

Number and Interval of Shovel Tests: 39 shovel test pits at 15 meter (50 foot) intervals

Number and Size of Units: Not Applicable

Width of Plowed Strips: Not Applicable

Results of Cultural Resources Survey

Number and Name of Prehistoric Sites Identified: None

Number and Name of Historic Sites Identified: None

Conclusions and Recommendations

No further cultural resources survey is recommended.

Report Author: Sharon D. White, PhD.

Date of Report: October 6, 2010

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INTRODUCTION

Project Description

The following presents the results of a Phase IB cultural resources survey conducted within the Area of Potential Effects (APE) for a proposed groundwater treatment facility and associated influent and effluent piping to be located within Lot 1A, Block 77 along Clinton Road between the intersections of Vanderbilt Court and an unnamed emergency access road in the Village of Garden City and Town of Hempstead, Nassau County, New York (Figure 1). CDM Federal Programs Corporation (CDM) is proposing the construction of an 8,203 square feet/762.1 square meters (0.19 acres/0.08 hectares) groundwater treatment facility and 1,597.0 linear feet/486.8 meters of influent and effluent piping adjacent to the Garden City Pumping Station, as well as an associated construction staging area and paved access road (Figure 2). In total, the area surveyed for the project is approximately 0.49 hectares/1.2 acres. The Phase IB cultural resources survey was undertaken to determine the presence of any potentially significant archaeological resources within the APE.

This Phase IB cultural resources survey has been conducted in accordance with the instructions and intent of the following federal regulations: Section 101(b)(4) of the National Environmental Policy Act of 1969; Sections 1(3) and 2(b) of Executive Order 11593; Section 106 of the National Historic Preservation Act; CFR 771, as amended; the guidelines developed by the Advisory Council on Historic Preservation published November 26, 1980; and the Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800. This Phase IB cultural resources survey also complies with the *Phase I Archaeological Report Format Requirements* (2005) of the New York Office of Parks, Recreation and Historic Preservation (OPRHP) and the *Standards for Cultural Resource Investigations* devised by the New York Archaeological Council (1994). This Phase IB cultural resources survey was directed by an archaeologist meeting the National Park Service standards of 36 CFR 61.

CDM Federal Programs Corporation completed a remedial design for the Old Roosevelt Field Contaminated Groundwater Site that includes the installation of three groundwater extraction wells, construction of a treatment facility, and piping from the extraction wells to the treatment building. The treated groundwater will be discharged into the local Nassau County Recharge Basin #124. While the extraction well and monitoring well locations have been previously disturbed by construction of a shopping center, office buildings and related paved parking areas, the locations of the treatment facility and piping are considered undisturbed areas where the Phase IB cultural resources survey is required pursuant to the federal regulations outlined above.

Archaeological fieldwork was performed on September 13 and 14, 2010. The Phase IB cultural resources survey was directed by Sharon D. White, Principal Investigator, who drafted this report. Archaeological fieldwork was conducted by Dave Strohmeier, field supervisor, and research assistants Alexis Platvoet, Mike Insetta, Adrienne Jarczewski and Tara DosSantos. Adrienne Jarczewski and Patricia McEachen performed data entry and graphics production. Artifact analysis was completed by Brenda Springsted and Sharon D. White. Paul McEachen, Christina Dunn, and Richard Grubb were report editors. All field notes, project documents, and logs (see Appendices A and B) are stored at Richard Grubb & Associates (RGA) headquarters in Cranbury, New Jersey.

Area of Potential Effects

The APE is defined in 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of the undertaking and may be different for different kinds of effects cause[d] by the undertaking." Included within the APE are all locations where the undertaking may result in ground disturbance (see Figure 2). The APE for this project consists of three segments: a linear corridor along the east shoulder of Clinton Road between the Garden City Plaza emergency access road and a point 75.0 feet (22.9 meters) south of the access drive to the Garden City Pumping Station; a linear corridor on the northern boundary of the Garden City Pumping Station and Lot 6A, Block 77 that extends east from the eastern edge of Clinton Road for approximately 381.3 feet (116.2 meters); a rectangular area of approximately 20,620.3 square feet (1,915.7 square meters) located in the northern portion of the Garden City Pumping Station and extending approximately 75.0 feet (22.9 meters) east beyond the Pumping Station's perimeter fence (see Figure 2).

The APE is characterized by mown turf grasses along Clinton Road bounded by a wooded lot to the east, by a secondary growth wood lot in the eastward segment of the influent/effluent piping corridor and the eastern portion of the groundwater treatment facility, and by mown turf grasses in the portion of the APE located within the Garden City Pumping Station (see Figure 2). No steep slopes are present within the APE.

Environmental/Physical Setting

John Milner Associates, Inc. (JMA) (2005) completed a Phase IA cultural resources survey for the project that extensively characterized the environmental context of the APE. Information on the geology, soils and hydrology of the APE is provided in the JMA (2005) report and is not repeated here.

Background Research

A previous Phase IA cultural resources survey for this project (JMA 2005) was completed for the Source Area within which the APE is located, as well as for the Down Gradient Area for the groundwater contamination site. The JMA (2005) report details the previous uses of the APE as part of Roosevelt Field, an early to mid-twentieth century airfield, and later as part of the Old Westbury Country Club. Roosevelt Field was redeveloped in the 1950s as a shopping center and an office complex. This report also noted that remnants of the early twentieth century Long Island Motor Parkway exist 50 to 200 feet (15 to 61 meters) south of the APE. Portions of the APE along Clinton Road were used by the airfield from 1910 through 1951, which was operated by a series of civilian and military owners and tenants. The western half of Roosevelt Field was extensively developed with numerous hangers, buildings and paved runways. A 1935 map of the airfield depicts one building owned by the Roosevelt Aviation School along Clinton Road adjacent to the APE (JMA 2005: Figure 5). During World War II, the Army Air Corps training school operated from the buildings along Clinton Road. Portions of the APE within and adjacent to the Garden City Pumping Station were originally part of Roosevelt Field. In the 1920s, the southwestern portion of the airfield was sold to private interests and is depicted on maps of the 1920s and 1930s as the Intercollegiate Golf Club and later, as the Old Westbury Country Club (Belcher-Hyde 1927; Dolph 1939). In 1952, this portion of the APE was redeveloped by the Village of Garden City as part of its water supply system (JMA 2005).

The southern boundary of Old Westbury Country Club abutted the right-of-way of the Long Island Motor Parkway, a privately funded, limited access toll road developed in the early twentieth century. The Long Island Motor Parkway extended from Queens through Nassau and Suffolk counties to Lake Ronkonkoma, and had several innovative design elements. The Long Island Motor Parkway eliminated at grade crossings by constructing bridges over existing roads and railroads, installed wire-mesh reinforced concrete roadbeds, constructed protective guard rails along the roadway and fencing along the right-of-way boundaries, and designed banked road curves to facilitate sustained speeds of up to 60 miles per hour (JMA 1005; Kroplick and Velocci 2008; Kroplick 2008; Dolkart 2002). The Long Island Motor Parkway also constructed a series of toll lodges, including one along Clinton Road in the vicinity of the APE (JMA 1005; Kroplick and Velocci 2008; Velocci 2004; Dolkart 2002). The Long Island Motor Parkway was closed to motorists in 1938 and subsequently subdivided among state and county agencies. As a result, these segments were redeveloped for a variety of purposes, including residential development, utility installations and green space, or incorporated into other roadways (JMA 1005; Kroplick and Velocci 2008; Dolkart 2002). While many sections of the Long Island Motor Parkway were dismantled through this process of redevelopment, several sections of the Long Island Motor Parkway remain in the three counties. Most notably, two sections of the Long Island Motor Parkway in Queens County are listed on the State and National Registers of Historic Places (SR: 1/22/2002; NR 4/1/2002) for their significance as a major development in the history of transportation and recreation, and because they embody distinctive characteristics of an automobile parkway, the first of its kind in the country (Dolkart 2002). A surviving segment of the Long Island Motor Parkway is located along the southern boundary of the Garden City Pumping Station that extends east from Clinton Road approximately 0.2 miles (0.32 kilometers).

Based on the previous development of the APE, JMA (2005) assessed the sensitivity of the APE for historic resources as low to medium. Based on the environmental characteristics of the APE, particularly the lack of a significant source of freshwater in the vicinity of the APE, JMA (2005) assessed the sensitivity for prehistoric archaeological resources within the APE as low. Nevertheless, JMA (2005) recommended a Phase IB cultural resources survey in undeveloped portions of the Source Area, which includes the APE. JMA also recommended a Phase II analysis of remnants of the Long Island Motor Parkway proximate to the APE in the event that "remediation activities are to take place within the vicinity (JMA 2005:20)."

Prior Disturbance

The APE is located within the former boundaries of the western portion of Roosevelt Field, a facility extensively developed during the early to mid-twentieth century. The southwestern portion of Roosevelt Field later became the Old Westbury Country Club. Beginning in 1952, the southern portion of the APE was developed as the Garden City Pumping Station from a portion of the Old Westbury Country Club. In 1957, Roosevelt Field was redeveloped as the Roosevelt Field Shopping Center and an office building complex. As a result, portions of the APE have been previously disturbed by demolition, grading and construction activities. Several underground utilities exist within and adjacent to the APE (see Figure 2).

The previous Phase IA cultural resources survey completed for this project (JMA 2005) noted the presence of a remnant section of the Long Island Motor Parkway adjacent to the southern boundary of the Garden City Pumping Station. This surviving segment of the Long Island Motor Parkway consists of the eastern bridge embankment of the Parkway's Clinton Road Bridge and a 0.2 mile (0.3 kilometer) segment of the Parkway roadbed. No features related to the Long Island Motor Parkway appear to be extant within the APE and no direct impacts to the Long Island Motor Parkway are envisioned by the proposed remediation project. The integrity of this segment of the Long Island Motor Parkway and its eligibility for listing on the State and National Registers of Historic Places has not been evaluated.

A visual inspection of the APE identified several areas of disturbance. Underground cablevision conduit and manholes are located near the northern terminus of the APE, from 25 feet (7.5 meters) south of the emergency access road to 125 feet (38 meters) south of this road (see Photographs 1 and 19). Approximately 450 feet (137 meters) south of the emergency access road is a series of three electrical junction boxes (Photographs 20 and 21). A remnant of a concrete foundation was located between STPs 12 and 13 approximately 550 feet (167.6 meters) south of the emergency access road (Photograph 22). Finally, an existing drainage line and manhole is located along Clinton Road from 84 feet (25.6 meters) south of the driveway of the Garden City Pumping Station north to this paved driveway (see Photograph 8). In addition, sewer, water, and electrical lines that bisect the APE in the central portion of the influent/effluent line segment of the APE from approximately 500 feet (152.4 meters) to 650 feet (198 meters) south of the emergency access road were noted on project construction plans (see Figure 2) as areas of disturbance.

PHASE IB FIELD INVESTIGATION

Research Goals and Design

The purpose of the Phase IB cultural resources survey is to identify any potentially significant archaeological resources within the APE. Based on the low to medium sensitivity for prehistoric and historic archaeological resources, a subsurface testing strategy was devised to sample and identify potentially intact prehistoric archaeological deposits within the APE. The upland topographic setting suggested that a prehistoric site, if present, would likely be situated in relatively shallow archaeological contexts. Background research completed during the Phase IA cultural resources survey indicated that a historic site, if present, would likely be situated near Clinton Road in areas adjacent to the documented locations of early twentieth century buildings related to Roosevelt Field. A research design was chosen to test the APE in accordance with the standards of the New York Archaeological Council (1994).

National Register of Historic Places Criteria

Potentially significant historic properties include districts, structures, objects, or sites which are at least 50 years old and which meet at least one National Register criterion. Criteria used in the evaluation process are specified in the Code of Federal Regulations, Title 36, Part 60, National Register of Historic Places (36 CFR 60.4). To be eligible for inclusion in the National Register of Historic Places, a historic property(s) must possess:

the quality of significance in American History, architecture, archaeology, engineering, and culture [that] is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history, or
- (b) that are associated with the lives of persons significant in our past, or

- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components lack individual distinction, or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

The physical characteristics and historic significance of the overall property are examined when conducting National Register evaluations. While a property in its entirety may be considered eligible based on Criteria A, B, C, and/or D, specific data is also required for individual components therein based on date, function, history, and physical characteristics, and other information. Resources that do not relate in a significant way to the overall property may contribute if they independently meet the National Register criteria.

A contributing building, site, structure, or object adds to the historic architectural qualities, historic associations, or archaeological values for which a property is significant because a) it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period, or b) it independently meets the National Register criteria. A non-contributing building, site, structure, or object does not add to the historic architectural qualities, historic associations, or archaeological values for which a property is significant because a) it was not present during the period of significance, b) it no longer possesses historic integrity reflecting its character at that time or is incapable of yielding important information about the period, due to alterations, disturbances, additions, or other changes, or c) it does not independently meet the National Register criteria.

Field Methods and Procedures

Subsurface archaeological testing was undertaken in the APE to determine the presence or absence of intact archaeological resources. The Standards of the New York Archaeological Council require the completion of shovel test pits (STPs) at 15-meter (50-foot) sampling intervals. The APE for this project consists of three segments: a linear corridor along the east shoulder of Clinton Road between the Garden City Plaza emergency access road and a point 75.0 feet (22.9 meters) south of the access drive to the Garden City Pumping Station; a linear corridor on the northern boundary of the Garden City Pumping Station and Lot 6A, Block 77 that extends east from the eastern edge of Clinton Road for approximately 381.3 feet (116.2 meters); a rectangular area of approximately 20,620.3 square feet (1915.7 square meters) located in the northern portion of the Garden City Pumping Station and extending approximately 75.0 feet (22.9 meters) east beyond the Pumping Station's perimeter fence (see Figure 2; Photographs 1-18).

Transects were established along Clinton Road and along the perimeter fence of the Garden City Pumping Station with compasses and tape measures. Existing roads and fence lines were used for orientation. A grid of six STPs was established in the portion of the APE where the groundwater treatment facility is proposed by using compasses and tape measures with existing fence lines and buildings used for orientation. One line of STPs within this grid was extended as a transect that covered the length of the construction staging area. Shovel test pits were assigned sequential numbers. Field methods were designed to avoid these areas of disturbance, where necessary, by 10 feet (3 meters) to 15 feet (4.6 meters) offsets of planned STPs (see Photographs 1 and 20). Two STPs (3 and 11) were offset due to their proximity to documented areas of disturbance (see Figure 2; Photographs 1 and 20). One planned STP was not excavated since it fell on asphalt surrounding an existing drainage line manhole at the southern terminus of the APE (see Photograph 8).

The STPs were excavated at 50-foot (15-meter) intervals. The location of each STP was plotted on a project base map (see Figure 2). Shovel test pits measured approximately 45 centimeters (18 inches) in diameter and extended into culturally sterile subsoils. All soils were sifted through six-millimeter (1/4-inch) wire mesh screen in order to recover all artifacts, regardless of age or cultural affiliation. Crew members recorded soil information on standardized field forms (see Appendix B). Shovel test pits were immediately backfilled and restored to original contours following completion of each STP. All field notes, photographs, project documents and artifacts are housed at RGA headquarters in Cranbury, New Jersey.

Results

Shovel testing and a visual inspection within the APE were performed on September 13 and 14, 2010 to locate potentially significant archaeological resources and to determine whether soils were disturbed or had retained their natural contours. Weather conditions during the field survey varied from overcast and raining to clear, sunny and dry.

Surface visibility of the ground surface was low due to a thick cover of turf grasses in open areas and weeds, vines, and shrubs in wooded areas.

Portions of the APE along Clinton Road were characterized as manicured lawn that transitioned into secondary growth wood lot. A transect of 20 STPs (1-20) was completed between the emergency access road on the northern terminus of the APE and the driveway to the Garden City Pumping Station along this segment of the influent/effluent piping line (see Figure 2). A transect of two STPs (STPs 38 and 39) was completed south of the driveway. No distinctive soil profile was encountered in the portion of the APE along Clinton Road. Both natural soil profiles and soil profiles composed of stacked fills or fills overlying truncated natural soil profiles were encountered. Fill deposits ranged in color from dark brown to dark yellowish brown silt loam, sandy loam or sand in one to two stacked layers that ranged in thickness from 15 to 44 centimeters (0.5 to 1.4 feet). In two STPs (STPs 1 and 6), fill deposits extended to the limit of excavation. In three STPs (STPs 2, 4, and 5) fill deposits overlaid a yellowish brown, extremely gravelly sand C horizon that extended to depths of up to 100 centimeters (3.3 feet) (see Wulforst 1987:47). In eight STPs (STPs 8, 11, 15, 16, 17, 18, 19 and 38) fill deposits overlaid a yellowish brown gravelly sandy loam or sand B horizon that extended to depths of up to 75 centimeters (2.4 feet). In six STPs (STPs 9, 10, 12, 13, 20 and 39) fill deposits overlaid a dark brown to dark yellowish brown gravelly sandy loam buried A horizon that extended to depths of up to 55 centimeters (1.8 feet) and transitioned into a yellowish brown silt loam or sandy loam B horizon that extended to depths of up to 72 centimeters (2.3 feet) (see Wulforst 1987:41, 47). Finally, three STPs (STPs 3, 7, and 14) contained natural soil profiles recorded as a grayish brown silt loam or gravelly sandy loam, 21 to 30 centimeters (0.7 to 1.0 feet) in thickness, overlying a yellowish brown silt loam, sandy silt loam or sand B horizon. In STP 7, the B horizon was a thin, 10-centimeter (0.4-foot) thick stratum that transitioned into a yellowish brown, extremely gravelly sand at 40 centimeters (1.3 feet) below ground surface (see Appendix A). Thirteen STPs (1, 2, 3, 6, 7, 9, 12, 13, 15, 19, 20, 38, and 39) in this segment of the APE contained artifacts in fill or A horizon contexts. Between two of these STPs (12 and 13) a remnants of a concrete foundation were observed (see Photograph 22). This concrete foundation does not appear on nineteenth century maps and most likely represents the remains of a small twentieth century structure of unknown function. Only four of these STPs (STPs 3, 7, 12, and 20) contained artifacts (n=17) in natural soil strata (A or buried A horizons). The other nine STPs with cultural materials contained artifacts (n=83) in fill layers only (see Appendices A and B). The distribution of artifacts was a light sheet scatter primarily confined to surface strata, although 29 artifacts were found in intermediate soil layers (nine in buried A horizon contexts and 20 in a Fill 2 layer). No artifacts were recovered deeper than 50 centimeters (20 inches) below ground surface. No artifacts were recovered in B horizon or C horizon contexts.

Artifacts recovered consisted of twentieth century vessel glass, coal, wire nails, slag, unidentifiable metal fragments, coal ash, concrete fragments, asphalt fragments and two unidentifiable whiteware fragments (see Appendix B). Modern bottle glass, aluminum foil, and rubber fragments from surface and near surface contexts were recorded on field forms, but not retained (see Appendix A). Non-diagnostic, ubiquitous materials, such as coal, coal ash, slag, brick, concrete and asphalt, were sampled (see Appendix B). The artifact assemblage was composed of a mix of late nineteenth and twentieth century materials, with vessel glass the most commonly represented item. Wire nails, coal and slag were also common in STPs in this portion of the APE.

A transect of eight STPs (21-28) was completed from approximately 33 feet north of the driveway to the Garden City Pumping Station running east for 350 feet (106.7 meters) along the outside of the northern perimeter fence of the Pumping Station along this segment of the influent/effluent piping line (see Figure 2). No distinctive soil profile was encountered in this portion of the APE. Both natural soil profiles and soil profiles composed of stacked fills or fills overlying truncated natural soil profiles were encountered. Fill deposits ranged in color from black to dark grayish brown silt loam, sandy loam or sandy silt loam in one to two stacked layers that ranged in thickness from 15 to 46 centimeters (0.5 to 1.5 feet). In one STP (STP 27) fill deposits overlaid a yellowish brown, extremely gravelly sand C horizon that extended to a depth of 50 centimeters (1.65 feet). In four STPs (STPs 24, 25, 26 and 28), fill deposits overlaid a yellowish brown sandy loam or sandy silt loam B horizon that extended to depths of up to 76 centimeters (2.5 feet). Finally, three STPs (STPs 21, 22 and 23) contained natural soil profiles recorded as a dark grayish brown to dark brown silt loam or gravelly sandy loam, 18 to 30 centimeters (0.6 to 1.0 feet) in thickness, overlying a yellowish brown silt loam or sandy loam B horizon. Three STPs (STPs 23, 24 and 27) in this segment of the APE contained artifacts in fill or A horizon contexts. Only one of these STPs (STP 23) contained artifacts (n=39) in a natural soil stratum (A horizon). The other two STPs with cultural materials contained artifacts (n=11) in fill layers only (see Appendices A and B). Only three artifacts were recovered in non-surface stratum contexts. No artifacts were recovered deeper than 35 centimeters (14 inches) below ground surface or in B horizon contexts.

Artifacts recovered consisted of twentieth century vessel glass, coal, wire nails, slag, unidentifiable plastic fragments, coal ash, and shell (see Appendix B). Modern bottle glass and concrete from surface and near surface contexts were recorded

on field forms, but not retained (see Appendix A). Non-diagnostic, ubiquitous materials, such as coal, coal ash, and slag, were sampled (see Appendix B). An extensive surface scatter of modern materials, which included plastic and metal beverage containers, plastic medicine bottles, plastic bag and tarp fragments and golf balls, was observed in wooded areas adjacent to this transect. In this portion of the APE, the artifact distribution was characterized as a light sheet scatter. Only one STP (23) contained a high artifact count caused primarily by the recovery of a broken glass bottle, 37 pieces of which were recovered. The remainder of the materials recovered in this portion of the APE consisted of coal and coal byproducts (see Appendix B).

A grid of six STPS (STPs 29-37) was completed in the northeastern corner of the Garden City Pumping Station and adjacent areas outside its perimeter fence and north of the existing water tank (see Figure 2). Within the grounds of the Garden City Pumping Station, a transect of three STPs was completed at the location of the proposed construction staging area (see Figure 2). No distinctive soil profile was encountered in this portion of the APE. Only soil profiles composed of stacked fills or fills overlying truncated natural soil profiles were encountered. Fill deposits ranged in color from dark brown to dark yellowish brown silt loam, sandy loam or sand in one to two stacked layers that ranged in thickness from eight to 52 centimeters (0.3 to 1.7 feet). In six STPs (STPs 32, 33, 34, 35, 36 and 37), five within the perimeter of the Pumping Station and one beyond its perimeter fence, fill deposits extended to the limit of excavation. Three of these STPs (STPs 35, 36, and 37) were stopped by asphalt rubble at depths of 23 to 70 centimeters (0.7 to 2.3 feet) below ground surface (see Appendix A). In two STPs (STPs 29 and 31) fill deposits overlaid a yellowish brown to light yellowish silt loam or sandy silt loam B horizon that extended to depths of up to 90 centimeters (2.95 feet). In one STP (STP 30) fill deposits overlaid a dark brown to very dark grayish brown gravelly sandy loam buried A horizon that extended to a depth of 73 centimeters (2.4 feet) and transitioned into a yellowish brown sandy loam B horizon that extended to a depth of 80 centimeters (2.6 feet) (see Appendix A). Four STPS (STPs 29, 30, 34 and 35) in this segment of the APE contained artifacts in fill contexts. Only nine artifacts were recovered in non-surface stratum contexts. No artifacts were recovered deeper than 66 centimeters (26 inches) below ground surface. No artifacts were recovered in B horizon or C horizon contexts (see Appendices A and B).

Artifacts recovered consisted of twentieth century vessel glass, coal, wire nails, slag, unidentifiable metal fragments, coal ash, concrete fragments, asphalt fragments and brick fragments (see Appendix B). Modern bottle glass, sewer pipe fragments, and scrap metal fragments from surface and near surface contexts were recorded on field forms but not retained (see Appendix A). Non-diagnostic, ubiquitous materials, such as coal, slag, brick, and asphalt, were sampled (see Appendix B). In this portion of the APE, the artifact distribution was characterized as a light scatter of artifacts in fill. The artifact assemblage was composed of a mix of late nineteenth and twentieth century materials, with vessel glass the most commonly represented item. Coal, brick, wire nails, and slag were also common in STPs in this portion of the APE.

CONCLUSIONS AND RECOMMENDATIONS

Richard Grubb & Associates completed a Phase IB cultural resources survey for the proposed Old Roosevelt Field Groundwater Contamination Site groundwater treatment facility to be located within and adjacent to the Garden City Pumping Station along Clinton Road in the Village of Garden City and Town of Hempstead, Nassau County, New York. The Phase IB cultural resources survey consisted of a visual inspection and the excavation of 39 STPs throughout the APE. The results of subsurface testing indicated that significant previous disturbance had occurred within the APE as evidenced by the presence of fill soils and truncated soil profiles. No significant historic or prehistoric cultural resources were identified. Shovel testing confirmed the low potential of the APE to contain significant cultural resources. Richard Grubb & Associates recommends no further cultural resources survey.

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FIGURES:

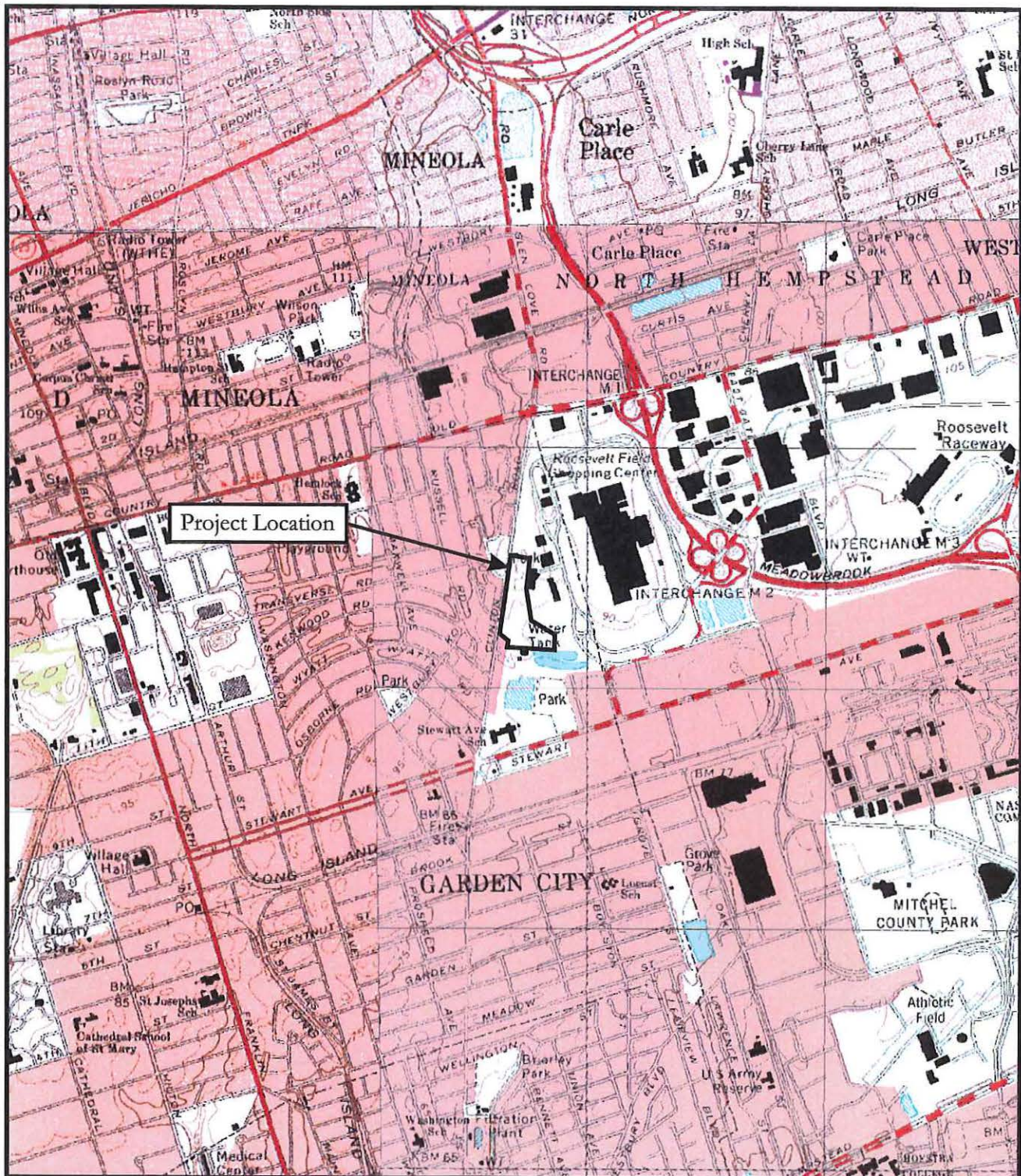


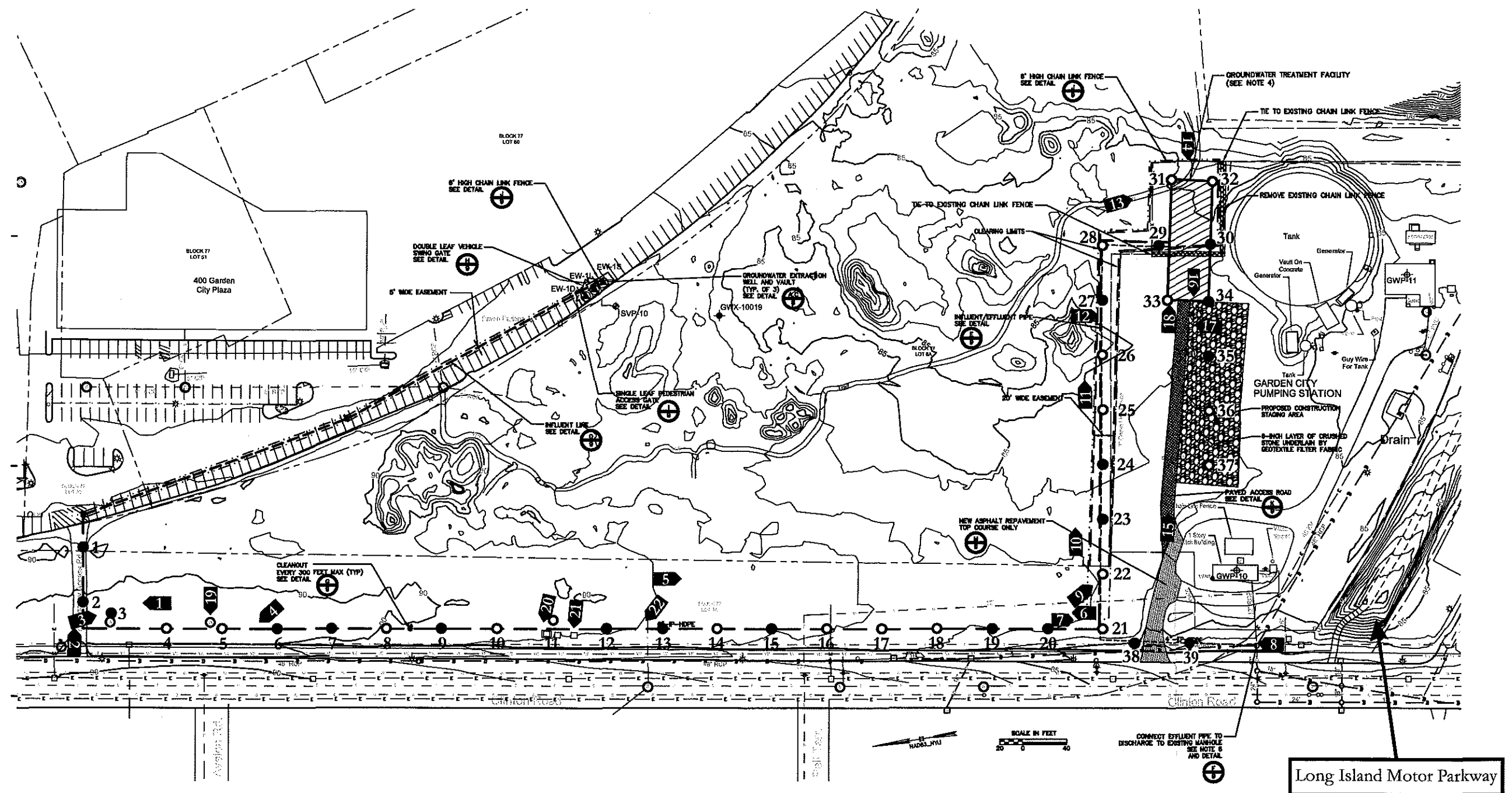
Figure 1:

U.S.G.S. Map

(from U.S.G.S. 7.5' Quadrangles: 1995 Freeport, NY;
1969 Lynbrook, NY; 1968 Sea Cliff, NY (photorevised 1979)
and 1967 Mamaroneck, NY-CT [photinspected 1975]).



Feet
0 2000



PHOTOGRAPHS (SEE FIGURE 2 FOR PHOTOGRAPH LOCATIONS):



Photograph 1:

Northern limit of Clinton Road segment of APE, Cablevision manhole near STP 3, and emergency access road in background.

Photo view: North

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 2:

Emergency access road on northern terminus of APE, STPs 1 and 2 in background.

Photo view: East

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 3:

Overview of APE from northern limit of Clinton Road segment.

Photo view: Southeast

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 4:

View from Clinton Road segment looking out from APE, Avalon Road in background.

Photo view: Northwest

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 5:

Midpoint of Clinton Road segment.

Photo view: South

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 6:

Southern terminus of influent/effluent line segment along Clinton Road, STP 20 in foreground.

Photo view: North

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 7:

Overview of junction of influent/effluent line at Pumping Station.

Photo view: South

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 8:

Manhole surrounded by asphalt at south end of 4" HDPE line.

Photo view: North

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 9:

Overview of western portion of influent/effluent piping segment along
Pumping Station fence.

Photo view: Southeast

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 10:

Western portion of wooded influent/effluent piping segment along Pumping Station fence.

Photo view: East

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 11:

Central portion of wooded influent/effluent piping segment along Pumping Station fence.

Photo view: East

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 12:

Overview looking out from Wood Lot segment, Pumping Station tanks in background.

Photo view: South

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 13:

Overview of groundwater treatment facility segment looking into APE from wood lot.

Photo view: South

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 14:

Overview of groundwater treatment facility segment looking into APE from wood lot.

Photo view: West

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 15:

Overview of Pumping Station portion of APE.

Photo view: East

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 16:

Overview of Pumping Station portion of APE.

Photo view: West

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 17:

Overview of Pumping Station portion of APE looking toward influent/effluent line segment.

Photo view: North

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 18:

Overview of proposed location of groundwater treatment facility.

Photo view: East

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 19:

Cablevision manhole within APE at the planned location of STP 3.

Photo view: West

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 20:

Electrical junction box within APE at the planned location of STP 11.

Photo view: West

Photographer: Sharon D. White

Date: September 13, 2010



Photograph 21:

Electrical junction box within APE between STPs 11 and 12.

Photo view: West

Photographer: Sharon D. White

Date: September 13, 2010



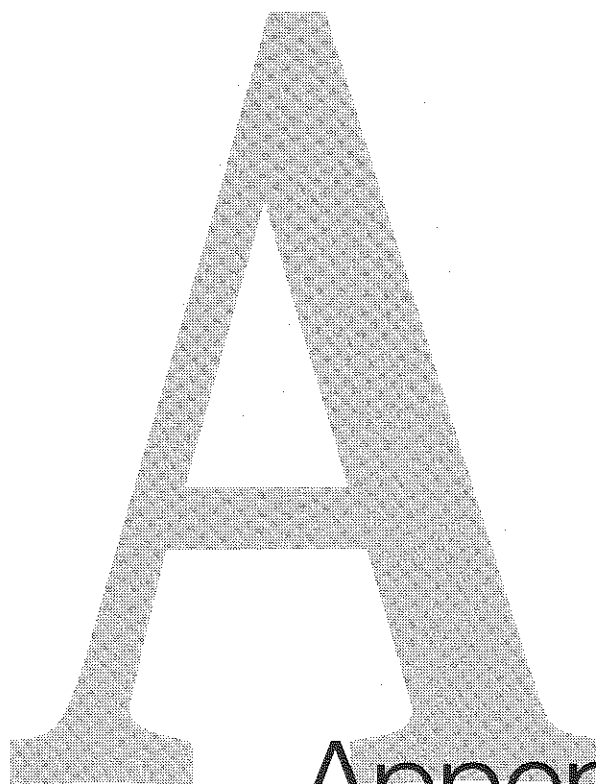
Photograph 22:

Concrete foundation remnant between STPs 12 and 13.

Photo view: Northwest

Photographer: Sharon D. White

Date: September 13, 2010



Appendix A

APPENDIX A: SHOVEL TEST PIT LOG

APPENDIX A: SHOVEL TEST PIT LOG

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS</u> |
|-------------|------------------------|-----------------|--------------|------------------|---|
| 1 | 00-44 (0.0-1.4) | Fill | Dk GBrn | SiLo, Pbs | CM Stopped by Asphalt |
| 2 | 00-15 (0.0-0.5) | Fill 1 | Dk Brn | SaLo, Grl | NCM |
| | 15-37 (0.5-1.2) | Fill 2 | Dk YBrn | SaLo, Slag & Grl | CM |
| | 37-62 (1.2-2.0) | C | YBrn | Sa, Pbs | NCM |
| 3 | 00-23 (0.0-0.75) | A | Dk GBrn | SiLo | CM |
| | 23-43 (0.75-1.4) | B | YBrn | SiLo | NCM |
| 4 | 00-15 (0.0-0.5) | Fill 1 | Dk Brn | SaLo, Grl | NR (Glass) |
| | 15-28 (0.5-0.9) | Fill 2 | Dk YBrn | SaLo, Pbs | NCM |
| | 28-50 (0.9-1.7) | C | YBrn | Sa, Pbs | NCM |
| 5 | 00-17 (0.0-0.55) | Fill | Dk Brn | SaLo, Pbs | NR (Glass) |
| | 17-100 (0.55-3.3) | C (Fill 2) | YBrn | Sa, Pbs | NCM |
| 6 | 00-25 (0.0-0.8) | Fill 1 (N Half) | Dk GBrn | SiLo | CM |
| | 25-60 (0.8-2.0) | Fill 2 (N Half) | Dk YBrn | Sa, Pbs | NCM |
| | 00-25 (0.0-0.8) | Fill 1 (S Half) | Dk GBrn | SiLo | CM |
| | 25-60 (0.8-2.0) | Fill 3 (S Half) | Dk GBrn | Sa, Pbs | NCM |
| 7 | 00-30 (0.0-1.0) | A | Dk GBrn | SaLo, Pbs | CM |
| | 30-40 (1.0-1.3) | B | YBrn | Sa, Pbs | NCM |
| | 40-54 (1.3-1.75) | C | YBrn | Sa, Cbs & Pbs | NCM |
| 8 | 00-22 (0.0-0.7) | Fill | Dk GBrn | SaSiLo, Grl | NR (Coal, Modern Bottle Glass, Foil) |
| | 22-50 (0.7-1.7) | B | YBrn | Sa, Pbs | NCM |
| 9 | 00-23 (0.0-0.75) | Fill | YBrn | SiLo | CM |
| | 23-35 (0.75-1.15) | Ab | Brn | SiLo | NR (Coal) |
| | 35-55 (1.15-1.8) | B | YBrn | SiLo | NCM |
| 10 | 00-19 (0.0-0.6) | Fill 1 | Dk Brn | SaLo, Pbs | NR (Glass) |
| | 19-35 (0.6-1.1) | Fill 2 | Brn | SaLo, Grl | NCM |
| | 35-55 (1.1-1.8) | Ab | VDk GBrn | SaLo, Pbs & Rts | NCM |
| | 55-72 (1.8-2.3) | B | YBrn | SaLo, Pbs | NCM |
| 11 | 00-20 (0.0-0.7) | Fill | Dk GBrn | SaSiLo, Grl | NR (Coal, Modern Bottle Glass, Slag) |
| | 20-42 (0.7-1.4) | B | YBrn | Sa, Pbs | NCM |
| | | | | | Stopped by Rock |
| 12 | 00-25 (0.0-0.8) | Fill | Brn / YBrn | SaLo, Rts & Pbs | CM |
| | 25-50 (0.8-1.65) | Ab | Dk GBrn | SaLo, Rts & Pbs | CM |
| | 50-70 (1.65-2.3) | B | YBrn | Sa, Pbs | NCM |

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS</u> |
|-------------|------------------------|----------------|----------------|------------------|--|
| 13 | 00-19 (0.0-0.6) | Fill 1 | Dk GBrn | SiLo | CM |
| | 19-23 (0.6-0.75) | Fill 2 | YBrn | SiLo | NCM |
| | 23-36 (0.75-1.2) | Ab | Dk YBrn | SiLo | NR (Coal) |
| | 36-56 (1.2-1.85) | B | YBrn | SiLo | NCM |
| 14 | 00-21 (0.0-0.7) | A | Dk GBrn | SaSiLo, Grl | NR (Coal, Concrete) |
| | 21-55 (0.7-1.8) | B | YBrn | SaSiLo, Grl | NCM |
| 15 | 00-25 (0.0-0.8) | Fill 1 | VDk GBrn | Salo, Rts & Pbs | CM; NR (Rubber, Coal, Concrete) |
| | 25-38 (0.8-1.2) | Fill 2 | DBrn | Salo, Rts & Pbs | CM |
| | 38-58 (1.2-1.9) | B | YBrn | Salo, Rts & Pbs | NCM |
| | | | | | |
| 16 | 00-20 (0.0-0.65) | Fill 1 | Dk GBrn / YBrn | Sa, Rts & Pbs | NCM |
| | 20-35 (0.65-1.15) | Fill 2 | Brn / Dk YBrn | Sa, Pbs | NCM |
| | 35-55 (1.15-1.8) | B | YBrn | Sa, Pbs | NCM |
| 17 | 00-18 (0.0-0.6) | Fill 1 | Dk Brn | SaLo, Pbs | NR (Glass, Slag, Coal) |
| | 18-34 (0.6-1.1) | Fill 2 | VDk GBrn | SaLo, Pbs & Grl | NCM |
| | 34-57 (1.1-1.9) | B | YBrn | SaLo, Pbs | NCM |
| 18 | 00-37 (0.0-1.2) | Fill | Dk GBrn | SaSiLo, Grl | NR (Concrete, Modern Bottle Glass, Coal) |
| | 37-75 (1.2-2.4) | B | Olive Y | Sa, Pbs | NCM |
| 19 | 00-24 (0.0-0.8) | Fill 1 | Dk GBrn | SiLo | CM |
| | 24-44 (0.8-1.45) | Fill 2 | Gry | Decayed Concrete | CM |
| | 44-64 (1.45-2.1) | B | Y | SaSiLo, Pbs | NCM |
| 20 | 00-20 (0.0-0.65) | Fill | Brn / YBrn | Sa, Rts & Pbs | NR (Slag) |
| | 20-35 (0.65-1.15) | Ab | Dk GBrn | Sa, Rts & Pbs | CM |
| | 35-55 (1.15-1.8) | B | YBrn | Sa, Pbs | NCM |
| 21 | 00-18 (0.0-0.6) | A | Dk Brn | SaLo, Pbs | NR (Glass, Coal) |
| | 18-41 (0.6-1.3) | B | YBrn | SaLo, Pbs | NCM |
| 22 | 00-30 (0.0-1.0) | A | VDk GBrn | SaLo, Pbs & Rts | NR (Glass) |
| | 30-55 (1.0-1.8) | B | YBrn | SaLo, Pbs | NCM |
| 23 | 00-28 (0.0-0.9) | A | Dk GBrn | SiLo, Rts | CM |
| | 28-40 (0.9-1.3) | B | YBrn | SiLo, Rts | NCM |
| | | | | | Stopped by Root |
| 24 | 00-20 (0.0-0.65) | Fill 1 | Dk GBrn | SaSiLo, Rts | CM |
| | 20-35 (0.65-1.15) | Fill 2 | Brn / YBrn | SaSiLo, Rts | CM |
| | 35-55 (1.15-1.8) | B | YBrn | SaSiLo, Rts | NCM |
| 25 | 00-32 (0.0-1.0) | Fill | Dk Gry | SaSiLo, Grl | NR (Slag) |
| | 32-60 (1.0-2.0) | B | YBrn | SaLo, Pbs | NCM |

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS</u> |
|-------------|------------------------|----------------|----------------|------------------|--|
| 26 | 00-18 (0.0-0.6) | Fill 1 | Blk | SaLo, Pbs | NCM |
| | 18-33 (0.6-1.1) | Fill 2 | Dk Brn | SaLo, Pbs & Slag | NR (Slag) |
| | 33-53 (1.1-1.7) | B | YBrn | SaLo, Pbs | NCM |
| 27 | 00-20 (0.0-0.65) | Fill | Blk | SiLo, Slag | CM |
| | 20-50 (0.65-1.65) | C | YBrn | Sa, Pbs | NCM |
| 28 | 00-46 (0.0-1.5) | Fill | VDk GBrn | SaSiLo, Rts | NR (Concrete, Coal) |
| | 46-76 (1.5-2.5) | B | YBrn | SaLo | NCM |
| 29 | 00-25 (0.0-0.8) | Fill 1 | VDk GBrn | SaLo, Pbs | CM |
| | 25-87 (0.8-2.85) | Fill 2 | Brn | SaSiLo | NCM |
| | 87-90 (2.85-2.95) | B | YBrn | SiLo | NCM |
| 30 | 00-26 (0.0-0.8) | Fill 1 | VDk GBrn | SaLo, Rts | NR (Sewer Pipe Frag, Slag) |
| | 26-66 (0.8-2.2) | Fill 2 | Dk YBrn | SaLo, Cbs & Pbs | CM |
| | 66-73 (2.2-2.4) | Ab | VDk GBrn | SaLo, Cbs & Pbs | NCM |
| | 73-80 (2.4-2.6) | B | YBrn | SaLo, Cbs & Pbs | NCM Stopped by Rock |
| 31 | 00-12 (0.0-0.4) | Fill 1 | Dk GBrn | SaSiLo | NR (Slag, Modern Bottle Glass) |
| | 12-33 (0.4-1.1) | Fill 2 | YBrn | SaSiLo | NCM |
| | 33-53 (1.1-1.75) | B | Lt YBrn | SaSiLo | NCM |
| 32 | 00-80 (0.0-2.7) | Fill | Brn | SaSiLo, Pbs | NR (Coal, Modern Bottle Glass) Stopped by Rock |
| 33 | 00-20 (0.0-0.7) | Fill 1 | Dk GBrn | SaSiLo, Grl | NR (Coal, Modern Bottle Glass, Slag) |
| | 20-67 (0.7-2.2) | Fill 2 | Dk YBrn | SaLo, Cbs | NR (Coal, Scrap Metal Frag) |
| | 67-100 (2.2-3.3) | Fill 3/C? | YBrn / YBrn | Sa, Pbs | NCM |
| 34 | 00-16 (0.0-0.5) | Fill 1 | Dk Brn | SaLo, Pbs | CM |
| | 16-53 (0.5-1.75) | Fill 2 | Brn | Sa, Pbs | NCM |
| | 53-100 (1.75-3.3) | Fill 3 | Dk GBrn / YBrn | SaSiLo | NCM |
| 35 | 00-09 (0.0-0.3) | Fill 1 | Brn | SaSiLo, Pbs | NCM |
| | 09-17 (0.3-0.6) | Fill 2 | Brn | SaLo, Pbs | NCM |
| | 17-36 (0.6-1.2) | Fill 3 | Brn / VDk GBrn | SaLo, Pbs | CM |
| | 36-70 (1.2-2.3) | Fill 4 | Dk YBrn | SaLo, Pbs | NR (Brick Frags) Stopped by Asphalt |

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS</u> |
|-------------|------------------------|----------------|--------------|-----------------|--------------------------------|
| 36 | 00-44 (0.0-1.4) | Fill | Dk Brn | SaLo, Grl & Pbs | NCM Stopped by Asphalt |
| 37 | 00-23 (0.0-0.7) | Fill | DK GBrn | SaLo, Cbs | NCM Stopped by Asphalt |
| 38 | 00-38 (0.0-1.35) | Fill | Dk YBrn | SaSiLo, Pbs | CM |
| | 38-67 (1.35-2.2) | B | YBrn | LoSa, Pbs | NCM |
| 39 | 00-24 (0.0-0.8) | Fill | Brn | SaLo, Rts & Pbs | CM |
| | 24-45 (0.8-1.5) | Ab | VDk GBrn | SaLo, Rts & Pbs | NCM |
| | 45-67 (1.5-2.2) | B | YBrn | LoSa, Pbs | NCM |

Key:

NCM = No Cultural Material

NR = Not Retained

CM = Cultural Material

Shade: Lt - Light, Dk - Dark, V - Very

Color: Blk - Black, Brn - Brown, Gry - Gray, Y - Yellow, GBrn - Gray Brown, YBrn - Yellow Brown

Soils: Lo - Loam, Si - Silt, Sa - Sand

Other: Grl - Gravel, Cbs - Cobbles, Pbs - Pebbles, Rts - Roots, / - Mottled

B

Appendix
B

APPENDIX B: ARTIFACT CATALOG

APPENDIX B: ARTIFACT CATALOG

| <u>CAT.</u> | <u>SHOVEL</u> | | | | | | <u>ARTIFACT</u> | <u>ARTIFACT</u> | <u>ARTIFACT</u> | | <u>COMMENTS/</u> |
|-------------|---------------|--------------|---------------|----------------|--------------|--------------|-----------------|-----------------|-----------------|---|----------------------|
| <u>NO.</u> | <u>TEST</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>MATERIAL</u> | <u>CLASS</u> | <u>TYPE</u> | <u>DESCRIPTION</u> | <u>MEASUREMENTS/</u> |
| | | | | | | | | | | | <u>DATES</u> |
| 1 | 1 | 1 | 0-44 | Fill | 2 | ARCH | Composite | Bituminous | Asphalt | Sample | 60.2g |
| 1 | 1 | 1 | 0-44 | Fill | 1 | DOM | Glass | Vessel | Bottle | Thin curved colorless body fragment, stippled | 20th century on |
| 1 | 1 | 1 | 0-44 | Fill | 2 | FUEL | Coal | | Coal | Sample | 21.5g |
| 1 | 1 | 1 | 0-44 | Fill | 1 | HRDW | Copper Alloy | Cast | Bolt | Small threaded bolt, dome headed with slotted head | L-1.2" |
| 1 | 1 | 1 | 0-44 | Fill | 1 | MISC | Ferrous Metal | Sheet Metal | Unidentified | Corroded scrap | |
| 1 | 1 | 1 | 0-44 | Fill | 1 | MISC | Synthetic | Plastic | Unidentified | Colorless flat fragment | 20th century on |
| 2 | 2 | 2 | 15-37 | Fill 2 | 1 | ARCH | Ferrous Metal | Cut | Nail | Head fragment, corroded | 19th century |
| 2 | 2 | 2 | 15-37 | Fill 2 | 2 | ARCH | Ferrous Metal | Wire | Nail | Head fragments, corroded | Late 19th century on |
| 2 | 2 | 2 | 15-37 | Fill 2 | 1 | DOM | Glass | Vessel | Bottle | Amber curved body fragment | |
| 2 | 2 | 2 | 15-37 | Fill 2 | 1 | FUEL | Coal | Byproduct | Slag | Sample | 39.2g |
| 3 | 3 | 1 | 0-23 | A | 2 | ARCH | Glass | Flat | Window | Colorless | Late 19th century on |
| 3 | 3 | 1 | 0-23 | A | 1 | DOM | Glass | Vessel | Unidentified | Colorless curved fragment | Late 19th century on |
| 4 | 6 | 1 | 0-25 | Fill 1 | 5 | ARCH | Ferrous Metal | Wire | Nail | Misc corroded fragments | Late 19th century on |
| 4 | 6 | 1 | 0-25 | Fill 1 | 1 | ARCH | Glass | Flat | Window | Pale green | |
| 4 | 6 | 1 | 0-25 | Fill 1 | 3 | DOM | Glass | Vessel | Bottle | Colorless curved fragments, one with embossed letters | Late 19th century on |
| 4 | 6 | 1 | 0-25 | Fill 1 | 1 | ELEC | Ceramic | Porcelain | Insulator | Glazed white fragment | Late 19th century on |
| 4 | 6 | 1 | 0-25 | Fill 1 | 1 | FUEL | Coal | | Coal | Sample | 4.5g |
| 5 | 7 | 1 | 0-30 | A | 1 | ARCH | Ferrous Metal | Wire | Nail | Head fragment, corroded | Late 19th century on |
| 5 | 7 | 1 | 0-30 | A | 1 | DOM | Ceramic | Whiteware | Unidentified | Small fragment | Nineteenth century |
| 5 | 7 | 1 | 0-30 | A | 2 | DOM | Glass | Vessel | Unidentified | Curved colorless body fragments | Late 19th century on |
| 5 | 7 | 1 | 0-30 | A | 1 | FUEL | Coal | | Coal | | 0.3g |
| 6 | 9 | 1 | 0-23 | Fill | 1 | DOM | Glass | Vessel | Bottle | Curved colorless body fragment | Late 19th century on |
| 6 | 9 | 1 | 0-23 | Fill | 2 | FUEL | Coal | | Coal | Sample | 2.6g |
| 7 | 12 | 1 | 0-25 | Fill | 3 | ARCH | Ferrous Metal | Cut | Tack | Corroded fragments small tack or nail | |
| 8 | 12 | 2 | 25-50 | Ab | 2 | DOM | Glass | Vessel | Unidentified | Curved pale aqua | |
| 8 | 12 | 2 | 25-50 | Ab | 2 | FUEL | Coal | | Coal | | 10.8g |
| 8 | 12 | 2 | 25-50 | Ab | 1 | FUEL | Coal | Byproduct | Slag | | 29.6g |
| 9 | 13 | 1 | 0-19 | Fill 1 | 1 | ARCH | Concrete | | Mortar | Sample | 5.8g |

| <u>CAT.</u> <u>NO.</u> | <u>SHOVEL</u> <u>TEST</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>ARTIFACT</u> <u>MATERIAL</u> | <u>ARTIFACT</u> <u>CLASS</u> | <u>ARTIFACT</u> <u>TYPE</u> | <u>DESCRIPTION</u> | <u>COMMENTS/</u> <u>MEASUREMENTS/</u> <u>DATES</u> |
|---------------------------|------------------------------|--------------|---------------|----------------|--------------|--------------|------------------------------------|---------------------------------|--------------------------------|---------------------------------------|--|
| 9 | 13 | 1 | 0-19 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Curved colorless body fragment | Late 19th century on |
| 9 | 13 | 1 | 0-19 | Fill 1 | 1 | FUEL | Coal | | Coal | Sample | 0.8g |
| 9 | 13 | 1 | 0-19 | Fill 1 | 1 | FUEL | Coal | Byproduct | Slag | Sample | 2.5g |
| 10 | 15 | 1 | 0-25 | Fill 1 | 1 | ARCH | Glass | Flat | Window | Pale green | |
| 10 | 15 | 1 | 0-25 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Curved colorless body fragment | Late 19th century on |
| 10 | 15 | 1 | 0-25 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Curved green body fragment | Late 19th century on |
| 10 | 15 | 1 | 0-25 | Fill 1 | 1 | ELEC | Glass | | Insulator | Green threaded insulator fragment | Late 19th century on |
| 11 | 15 | 2 | 25-38 | Fill 2 | 3 | ARCH | Ferrous Metal | Wire | Nail | Corroded nails | Late 19th century on |
| 11 | 15 | 2 | 25-38 | Fill 2 | 2 | DOM | Glass | Vessel | Bottle | Thin curved pale lime green fragments | Possibly coke bottle fragments |
| 12 | 19 | 1 | 0-24 | Fill 1 | 1 | DOM | Synthetic | Plastic | Vessel | Curved colorless | 20th century on |
| 12 | 19 | 1 | 0-24 | Fill 1 | 1 | FUEL | Coal | | Coal | Sample | 1.9g |
| 12 | 19 | 1 | 0-24 | Fill 1 | 1 | FUEL | Coal | Byproduct | Slag | Sample | 2.3g |
| 13 | 19 | 2 | 24-44 | Fill 2 | 1 | ARCH | Ferrous Metal | Wire | Spike | Corroded bent | L-4.2". Late 19th century on |
| 13 | 19 | 2 | 24-44 | Fill 2 | 2 | DOM | Glass | Vessel | Bottle | Amber curved body fragment | |
| 13 | 19 | 2 | 24-44 | Fill 2 | 2 | FUEL | Coal | | Coal | Sample | 0.8g |
| 13 | 19 | 2 | 24-44 | Fill 2 | 5 | FUEL | Coal | Byproduct | Slag | Sample | 22.1g |
| 14 | 20 | 2 | 20-35 | Ab | 1 | ARCH | Ferrous Metal | Wire | Nail | Misc corroded fragments | Late 19th century on |
| 14 | 20 | 2 | 20-35 | Ab | 1 | FUEL | Coal | | Coal | | 24.6g |
| 14 | 20 | 2 | 20-35 | Ab | 1 | FUEL | Coal | Byproduct | Ash | | 0.3g |
| 14 | 20 | 2 | 20-35 | Ab | 1 | FUEL | Coal | Byproduct | Slag | | 3.0g |
| 15 | 23 | 1 | 0-28 | A | 1 | BIO | Shell | Clam | Shell | Fragment | 0.8g |
| 15 | 23 | 1 | 0-28 | A | 1 | DOM | Glass | Vessel | Bottle | Amber curved body fragment | |
| 15 | 23 | 1 | 0-28 | A | 37 | DOM | Glass | Vessel | Bottle | Bright green curved body fragments | Same vessel. 20th century on |
| 16 | 24 | 1 | 0-20 | Fill 1 | 1 | ARCH | Ferrous Metal | Wire | Nail | Corroded fragment | Late 19th century on |
| 16 | 24 | 1 | 0-20 | Fill 1 | 1 | FUEL | Coal | Byproduct | Ash | | 1.3g |
| 16 | 24 | 1 | 0-20 | Fill 1 | 1 | FUEL | Coal | Byproduct | Cinder | | 3.7g |
| 16 | 24 | 1 | 0-20 | Fill 1 | 2 | FUEL | Coal | Byproduct | Slag | | 9.7g |
| 17 | 24 | 2 | 20-35 | Fill 2 | 1 | FUEL | Coal | | Coal | Partially fired. Sample | 75.9g |
| 17 | 24 | 2 | 20-35 | Fill 2 | 1 | FUEL | Coal | Byproduct | Cinder | Sample | 5.4g |
| 17 | 24 | 2 | 20-35 | Fill 2 | 1 | FUEL | Coal | Byproduct | Slag | Sample | 40.2g |

| <u>CAT.</u> <u>NO.</u> | <u>SHOVEL</u> <u>TEST</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>ARTIFACT</u> | | | <u>DESCRIPTION</u> | <u>COMMENTS/</u> <u>MEASUREMENTS/</u> |
|---------------------------|------------------------------|--------------|---------------|----------------|--------------|--------------|-----------------|--------------|--------------|---|--|
| | | | | | | | <u>MATERIAL</u> | <u>CLASS</u> | <u>TYPE</u> | | <u>DATES</u> |
| 18 | 27 | 1 | 0-20 | Fill | 1 | ARCH | Ceramic | Red Clay | Brick | Pink fragment | 2.7g |
| 18 | 27 | 1 | 0-20 | Fill | 1 | FUEL | Coal | Byproduct | Slag | Sample | 92.7g |
| 18 | 27 | 1 | 0-20 | Fill | 1 | MISC | Synthetic | Plastic | Unidentified | Turquoise blue scrap | Mid 20th century on |
| 19 | 29 | 1 | 0-25 | Fill 1 | 1 | ARCH | Ceramic | Red Clay | Brick | Red fragment | 4.9g |
| 19 | 29 | 1 | 0-25 | Fill 1 | 1 | ARCH | Ferrous Metal | Wire | Spike | Thick spike, end bent right angle. Corroded | L-5.5". Late 19th century on |
| 19 | 29 | 1 | 0-25 | Fill 1 | 1 | ARCH | Glass | Flat | Window | Thick pale green | Late 19th century on |
| 19 | 29 | 1 | 0-25 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Misc curved colorless | Late 19th century on |
| 19 | 29 | 1 | 0-25 | Fill 1 | 1 | DOM | Ferrous Metal | Tin | Can | Corroded base or top of round can | Diameter 2.6". Late 19th century on |
| 19 | 29 | 1 | 0-25 | Fill 1 | 2 | FUEL | Coal | | Coal | Sample | 5.6g |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | ARCH | Ceramic | Red Clay | Brick | Brown edge | 3.9g |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | ARCH | Ferrous Metal | Wire | Nail | Corroded nail | L-3". Late 19th century on |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | ARCH | Glass | Flat | Window | Colorless | Late 19th century on |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | DOM | Glass | Vessel | Unidentified | Colorless curved fragment, part of embossed letter | Possibly milk bottle. Late 19th century on |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | FUEL | Coal | | Coal | Sample | 1.6g |
| 20 | 30 | 2 | 26-66 | Fill 2 | 1 | FUEL | Coal | Byproduct | Slag | Sample | 3.5g |
| 21 | 34 | 1 | 0-16 | Fill 1 | 1 | ARCH | Ceramic | Red Clay | Brick | Red fragment | 1.0g |
| 21 | 34 | 1 | 0-16 | Fill 1 | 2 | DOM | Glass | Vessel | Bottle | Amber curved body fragment | Late 19th century on |
| 21 | 34 | 1 | 0-16 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Thin curved colorless fragment, solarized faint purple tint | Ca.1870-1930 |
| 21 | 34 | 1 | 0-16 | Fill 1 | 3 | DOM | Glass | Vessel | Unidentified | Misc. curved colorless fragments | Late 19th century on |
| 21 | 34 | 1 | 0-16 | Fill 1 | 1 | FUEL | Coal | | Coal | Partially fired | 3.8g |
| 21 | 34 | 1 | 0-16 | Fill 1 | 1 | FUEL | Coal | Byproduct | Slag | | 23.1g |
| 22 | 35 | 3 | 17-26 | Fill 3 | 1 | ARCH | Ferrous Metal | Wire | Nail | Shaft fragment | Late 19th century on |
| 22 | 35 | 3 | 17-26 | Fill 3 | 2 | DOM | Glass | Vessel | Unidentified | Colorless fragments | Late 19th century on |
| 23 | 38 | 1 | 0-38 | Fill | 5 | ARCH | Ceramic | Red Clay | Brick | Tan fragments. Sample | 16.4g |
| 23 | 38 | 1 | 0-38 | Fill | 4 | ARCH | Ceramic | Red Clay | Brick | Pink fragments with white quartz temper. Sample | 14.3g |
| 23 | 38 | 1 | 0-38 | Fill | 2 | ARCH | Glass | Flat | Window | Thin pale aqua | Late 19th century on |
| 23 | 38 | 1 | 0-38 | Fill | 1 | DOM | Glass | Vessel | Unidentified | Curved pale aqua | |
| 23 | 38 | 1 | 0-38 | Fill | 1 | DOM | Glass | Vessel | Unidentified | Colorless fragment | |
| 23 | 38 | 1 | 0-38 | Fill | 1 | DOM | Glass | Vessel | Unidentified | Very thin curved colorless fragment | |

| <u>CAT.</u> | <u>SHOVEL</u> | | | | | | <u>ARTIFACT</u> | <u>ARTIFACT</u> | <u>ARTIFACT</u> | | <u>COMMENTS/</u> |
|-------------|---------------|--------------|---------------|----------------|--------------|--------------|-----------------|-----------------|-----------------|---|----------------------|
| <u>NO.</u> | <u>TEST</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>MATERIAL</u> | <u>CLASS</u> | <u>TYPE</u> | <u>DESCRIPTION</u> | <u>MEASUREMENTS/</u> |
| | | | | | | | | | | | <u>DATES</u> |
| 23 | 38 | 1 | 0-38 | Fill | 3 | FUEL | Coal | | Coal | Sample | 28.2g |
| 23 | 38 | 1 | 0-38 | Fill | 1 | FUEL | Coal | Byproduct | Ash | Sample | 2.3g |
| 24 | 39 | 1 | 0-24 | Fill | 3 | ARCH | Ceramic | Red Clay | Brick | Tan fragments. Sample | 6.5g |
| 24 | 39 | 1 | 0-24 | Fill | 1 | ARCH | Ceramic | Red Clay | Brick | Pink fragments. Sample | 1.0g |
| 24 | 39 | 1 | 0-24 | Fill | 2 | DOM | Glass | Vessel | Bottle | Thin curved colorless with mold seams and slightly burned | Late 19th century on |
| 24 | 39 | 1 | 0-24 | Fill | 2 | FUEL | Coal | | Coal | Sample | 34.7g |
| 24 | 39 | 1 | 0-24 | Fill | 1 | FUEL | Coal | | Ash | Sample | 9.2g |

Key:

Depth* in Centimeters

ARCH- Architectural

BIO- Biological

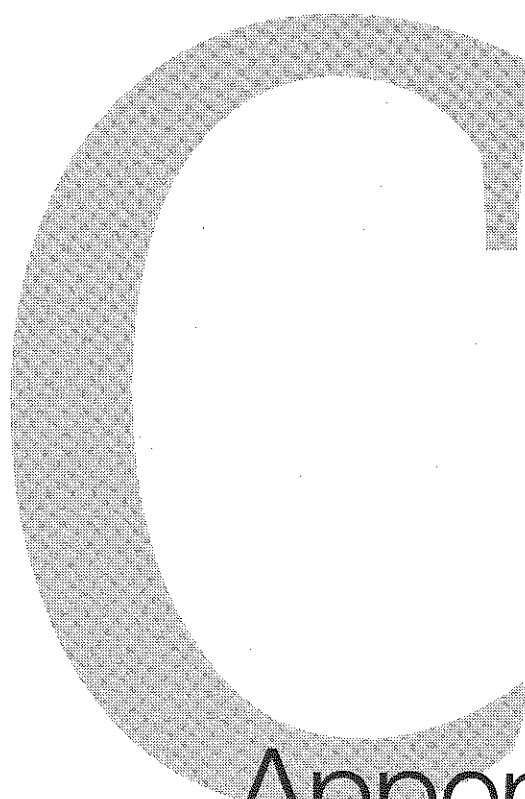
DOM- Domestic

ELEC- Electrical

FUEL- Fuel related

HRDW- Hardware

MISC- Miscellaneous



Appendix C

APPENDIX C: ANNOTATED BIBLIOGRAPHY

| | |
|---------------------|---|
| Authors: | Sharon D. White |
| Title: | Phase IB Cultural Resources Survey, Old Roosevelt Field Groundwater Contamination Site, Village of Garden City and Town of Hempstead, Nassau County, New York |
| Date: | October 2010 |
| RGA Database Title: | CDM Federal: Old Roosevelt Field |
| RGA Project No.: | 2010-211NY |
| State: | New York |
| County: | Nassau |
| Municipality: | Village of Garden City, Town of Hempstead |
| U.S.G.S. Quad: | Freeport, NY |
| Drainage Basin: | East Meadow Brook, East Bay, Jones Inlet, Atlantic Ocean |
| Regulation: | Section 106, National Historic Preservation Act; 36 CFR Part 800 |
| Project Type: | Environmental Remediation |
| Project Sponsor: | United States Environmental Protection Agency |
| Client: | CDM Federal Programs Corporation |
| Level of Survey: | Identification-level |
| Cultural Resources: | none |

**PHASE IA/IB CULTURAL RESOURCES SURVEY
OLD ROOSEVELT FIELD CONTAMINATED GROUNDWATER
AREA SUPERFUND SITE, OPTION 2
VILLAGE OF GARDEN CITY, NASSAU COUNTY
NEW YORK**

FEBRUARY 2013



**RICHARD GRUBB & ASSOCIATES, INC.
Cultural Resource Consultants**

**Phase IA/IB Cultural Resources Survey
Old Roosevelt Field Contaminated Groundwater
Area Superfund Site Option 2
Village Of Garden City, Nassau County
New York**

By

Ilene Grossman-Bailey, Ph.D.

Principal Investigator:

Ilene Grossman-Bailey, Ph.D.

Prepared by:

Richard Grubb & Associates, Inc.
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Prepared for:

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Fairfax, Virginia 22030

Date: February 25, 2013

MANAGEMENT SUMMARY

OPRHP Project Review Number:

Involved State or Federal Agencies: United States Environmental Protection Agency (EPA)
(Contract Number: EP-W-09-002)
Work Assignment Number: 023-RARA-02PE, under the EPA Remedial
Action Contract (RAC 2) program

Phase of Survey: IA/IB

Location Information

Location: Tax Parcel Section 44, Block D, Lot 48 south of Stewart Avenue east of the intersection with Clinton Avenue and west of the intersection with Raymond Court
Tax Parcel Section 44, Block 75, Lot 10 north of Stewart Avenue along the eastern side of the Stewart Avenue Elementary School Park
Tax Parcel Block 77, Lot 2, west of the northern end of Raymond Court along the former Long Island Motor Parkway corridor
Tax Parcel Block 77, Lot 5 north to the existing treatment facility
Minor Civil Division: Village of Garden City
County: Nassau

Survey Area (Metric and English)

Length: A 6-inch pipeline from a proposed extraction well to an existing treatment facility piping, 815.3 meters (2,675.0 feet);
Width: Piping easement, 15.2 meters (50.0 feet);
Number of Acres Surveyed: Pipeline, 1.2 hectares (3.1 acres);

U.S.G.S. 7.5-minute Quadrangle Map: Freeport, NY

Cultural Resources Survey Overview

Number and Interval of Shovel Tests: 31 shovel test pits at 15 meter (50 foot) intervals

Number and Size of Units: Not Applicable

Width of Plowed Strips: Not Applicable

Results of Cultural Resources Survey

Number and Name of Prehistoric Sites Identified: None

Number and Name of Historic Sites Identified: Portion of the former Long Island Motor Parkway (1908-1938)

Conclusions and Recommendations

No significant archaeological resources were located within the Area of Potential Effects (APE). The portion of the former Long Island Motor Parkway (1908-1938) contained within the APE is deemed ineligible for the New York and National Registers of Historic Places. No further cultural resources survey is recommended.

Report Author: Ilene Grossman-Bailey, Ph.D.

Date of Report: February 25, 2013

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Photograph 5: Portions of the Long Island Motor Parkway within the APE (Section E).
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Appendices

- Appendix A: Shovel Test Pit Log
- Appendix B: Artifact Catalog
- Appendix C: Project Documents
- Appendix D: Annotated Bibliography

INTRODUCTION

Project Description

The following presents the results of a Phase IA/IB) cultural resources survey conducted within the Area of Potential Effects (APE) for the Old Roosevelt Field Contaminated Groundwater Area Superfund Site, a proposed 6-inch pipeline (Option 2) running 815.3 meters (2,675 feet) from a proposed extraction well to an existing treatment facility in the Village of Garden City, Nassau County, New York (Figure 1). A combined Phase IA/IB cultural resources survey was conducted within the APE for a proposed 457.2 meter (1,500 foot) portion of the pipeline within Tax Parcel Section 44, Block D, Lot 48 south of and crossing Stewart Avenue, east of the intersection with Clinton Avenue and west of the intersection with Raymond Court. A Phase IB cultural resources survey was conducted within the APE for a proposed 400.8 meter (1,315-foot) portion of the pipeline within Tax Parcel Section 44, Block 75, Lot 10 north of Stewart Avenue along the eastern side of the Stewart Avenue Elementary School Park, Tax Parcel Block 77, Lot 2, west of the northern end of Raymond Court along the former Long Island Motor Parkway corridor, and Tax Parcel Block 77, Lot 6A north to the existing treatment facility (Figure 2). CDM Smith is currently conducting a supplemental Remedial Action (RA) to address the southern contamination plume at the site. In total, the area surveyed for the project is approximately 1.2 hectares (3.1 acres). The Phase IB cultural resources survey was undertaken to determine the presence of any potentially significant archaeological resources within the APE.

The combined Phase IA/IB cultural resources survey was conducted in accordance with the instructions and intent of the following federal regulations: Section 101(b)(4) of the National Environmental Policy Act of 1969; Sections 1(3) and 2(b) of Executive Order 11593; Section 106 of the National Historic Preservation Act; CFR 771, as amended; the guidelines developed by the Advisory Council on Historic Preservation published November 26, 1980; and the Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800. The Phase IB cultural resources survey also complies with the Phase I Archaeological Report Format Requirements (2005) of the New York Office of Parks, Recreation and Historic Preservation (OPRHP) and the Standards for Cultural Resource Investigations devised by the New York Archaeological Council (1994). The combined Phase IA/IB cultural resources survey was directed by an archaeologist meeting the National Park Service standards of 36 CFR 61.

In 2005, John Milner Associates (JMA) conducted a Phase IA survey as part of a remedial investigation/feasibility study for the USEPA Response Action Contract (RAC-II) Program. The study provided an archaeological assessment of the 214-acre Source Area comprised of commercial property, and the 160-acre Down Gradient Area comprised of residential neighborhoods. It was concluded that significant twentieth century ground disturbance occurred such that the Down Gradient Area had no potential to contain archaeological resources and the Source Area had limited potential in two undisturbed areas, and in the Hazelhurst Park baseball fields. JMA recommended Phase IB surveys in these areas for any future remediation activities. The Source Area also contains a segment of the 45-mile Long Island Motor Parkway corridor built by William K. Vanderbilt, II from 1908-1911. JMA identified remnants of the parkway roadbed and guardrail system within the Source Area and west of the Option 2 pipeline route, and also noted the location of a former Garden City Toll Lodge near Clinton Road. JMA recommended a Phase II evaluation study for any future remediation activities in the vicinity of remnant parkway features.

CDM Smith completed a remedial design for the Old Roosevelt Field Contaminated Groundwater Site that includes the installation of three groundwater extraction wells, construction of a treatment facility, and piping from the extraction wells to the treatment building. While the extraction well and monitoring well locations were previously disturbed by construction of a shopping center, office buildings and related paved parking areas, the Option 2 pipeline crosses undisturbed areas where a Phase IB cultural resources survey is required pursuant to the federal regulations outlined above.

Archaeological fieldwork was performed on January 21 and 22, 2013. The combined Phase IA/IB cultural resources survey was directed by Ilene Grossman-Bailey, Principal Investigator, who drafted this report. Research to update the information presented in a Stage IA cultural resources survey report by JMA (2005) was completed by Croshier Archaeological Research and Ilene Grossman-Bailey. Archaeological fieldwork was conducted by Dr. Grossman-Bailey, Allison Gall, field supervisor, and research assistants Alexis Platvoet, and Michael Insetta. Sean Bratton compiled the shovel test pit log and Patricia McEachen created the report graphics. Artifact analysis was completed by Laura Cushman. Mary Lynne Rainey, Catherine Reagan, and Richard Grubb were report editors. All field notes, project documents, and logs (see Appendices A-C) are stored at Richard Grubb & Associates (RGA) headquarters in Cranbury, New Jersey.

Area of Potential Effects

The APE is defined in 36 CFR 800.16(d) as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of the undertaking and may be different for different kinds of effects cause[d] by the undertaking.” Included within the APE are all locations where the undertaking may result in ground disturbance (see Figure 2).

The APE for this project consists of six sections of a linear pipeline corridor 15.2 meters (50.0 feet) in width (see Figure 2):

- Section A extends along the south side of Stewart Avenue from the proposed extraction well east of the intersection of Stewart Avenue and Clinton Road for approximately 250 meters (820 feet) within Section 44, Block D, Lot 48.
- Section B turns north for 22.8 meters (75 feet) within Section 44, Block D, Lot 48, crossing Stewart Avenue via horizontal directional drilling (HDD), then crossing the Stewart Avenue Elementary School Park parking lot within Section 44, Block 75, Lot 10.
- Section C within Section 44, Block 75, Lot 10, turns east for 61 meters (200 feet) along a fence line.
- Section D turns north for 192 meters (630 feet) along an unimproved roadway along the eastern perimeter of the park's ball fields within Section 44, Block 75, Lot 10, and crosses a wooded area north of the ball field via HDD.
- Section E extends west for 137.2 meters (450 feet) within the roadbed of the former Long Island Motor Parkway corridor within Block 77, Lot 2.
- Section F, the final segment of the linear corridor, turns north for 103.6 meters (340 feet), then turns west for 18.3 meters (60 feet) along an unimproved roadway between the Garden City Pumping Station and a large, linear stormwater basin in Block 77, Lot 6A.

South of Stewart Avenue, the eastern portion of the APE is characterized by manicured grasses and park-like trees while the western portion is composed of manicured grasses with sparse trees and disturbance caused by heavy machinery. The landscape of the APE north of Stewart Avenue, north of the parking lot and along the eastern side of the ball field is characterized by manicured grass with scrub-like trees and bushes adjacent to the former Long Island Motor Parkway. The former motor parkway and unimproved roadway to the north were cleared of vegetation but were bounded by secondary growth woods (see Figure 2). No steep slopes are present within the APE.

Environmental/Physical Setting

John Milner Associates, Inc. (JMA) (2005) completed a Phase IA cultural resources survey for the project that extensively characterized the environmental context of the majority of the APE, located within the 214-acre "Source Area" portion of the JMA report. Information on the geology, soils and hydrology of most of the APE is provided in the JMA (2005) report and is not repeated here. The APE is on level, 0-3 percent sloped, well drained soils within the Hempstead Plain portion of the Atlantic Coastal Plain of New York (OPRHP 2005: Figure 1.1; Wulforst 1987).

The portion of the APE south of Stewart Avenue was not included in JMA's report. Like the remainder of the APE characterized by JMA, this is a former portion of the Hempstead Plains, a natural upland grassy plain, approximately 80 feet above mean sea level. Soils within this portion of the APE are characterized as Urban land (NRCS 2013). Although natural streams are no longer present in the vicinity of the APE (see Figure 1), early twentieth century U.S.G.S. quadrangles (U.S.G.S. 1903, 1918) indicate that the APE is located in a drainage divide, and was drained by headwaters of East Meadow Brook and unnamed tributaries of Hempstead Reservoir. East Meadow Brook drained into Freeport Creek, then Long Creek, which empties into the Jones Inlet and the Atlantic Ocean approximately eight miles to the south. Hempstead Reservoir empties into East Rockaway Creek, which empties into the Long Beach Channel before emptying into the Atlantic Ocean, also approximately eight miles to the south.

Background Research

A previous Phase IA cultural resources survey for this project was completed for the “Source Area”, within which most of the APE is located, as well as for a Down Gradient Area south of the APE (JMA 2005). As with other portions of the APE, research at the OPRHP indicated that there are no archaeological sites within two miles of the additional portion of the APE south of Stewart Avenue. No properties listed on the New York or National Register of Historic Places are located within the APE although several are located within one-half mile (JMA 2005). The Stewart Avenue (Elementary) School is closest to the APE. In 2009, the school was determined eligible for the National Register of Historic Places under Criteria A and C. The school is located across Stewart Avenue from the southwestern terminus of the APE and west of the portion that extends through the ball fields. The school is determined eligible under Criterion C in that it is an exemplary example of a mid-twentieth century Tudor Revival Style school that emulates the style associated with A.T. Stewart era buildings (that form part of a historic district elsewhere in Garden City) and the National Register-listed St. Paul's School, built by A.T. and Cornelia Stewart (Project Reference: 09PR03107; Site No. 05921.000110; Dierickx 1986). Alexander Turney Stewart (1803-1876), for whom Stewart Avenue is named, was an Irish immigrant who came to New York in 1818 and established a very successful dry goods business in Manhattan in 1823. He bought a portion of Hempstead Plains and founded the planned Village of Garden City in 1869. Between 1871 and 1893, he built a number of houses and other structures for his workers (Elias 1992; Owen 1997). A.T. Stewart Era Buildings (NR: 11/14/1978) comprise a historic district in Garden City including 50 residences, commercial, religious, and civic structures (Owen 1997: 804-805).

The JMA (2005) report details the land use history of the northern portion of the APE as being part of Roosevelt Field, an early to mid-twentieth century airfield, and later as a part of the Old Westbury Country Club. Remnants of the 1908-1938 Long Island Motor Parkway are within a portion of the APE. Roosevelt Field was redeveloped in the 1950s as a shopping center and an office complex. The western half of Roosevelt Field was extensively developed with numerous hangars, buildings and paved runways north of the APE (JMA 2005: Figure 5). In the 1920s, the southwestern portion of the airfield was sold to private interests and is depicted on maps of the 1920s and 1930s as the Intercollegiate Golf Club and later, as the Old Westbury Country Club (Belcher-Hyde 1927; Dolph 1939). In 1952, this area within and adjacent to the northern portion of the APE, was redeveloped by the Village of Garden City as part of its water supply system (JMA 2005). In addition, research conducted as part of this study revealed that the APE was part of Camp Black, a Spanish American War army camp occupied between April and September 1898 by 14,000 troops (Greguras 2005; Hastings 1903). Historic photographs of the camp show a number of tents and temporary buildings across Hempstead Plains but the exact location of the tent camps is not indicated in these photographs (Long Island Genealogy 2013). A historic marker about the camp was placed adjacent to the Stewart School ball field parking lot.

The Long Island Motor Parkway right-of-way is located within the APE. Also known as the Vanderbilt Motor Parkway, this privately funded, limited access toll road was developed in the early twentieth century. The 45-mile Long Island Motor Parkway extended from Queens County through Nassau and Suffolk Counties to Lake Ronkonkoma, and had several innovative design elements. Approximately 22 feet wide in most locations, the designers of the parkway eliminated at-grade crossings by constructing bridges over existing roads and railroads, installing wire-mesh reinforced concrete roadbeds, constructing protective guard rails along the roadway and fencing along the right-of-way boundaries, and designing banked road curves to facilitate sustained speeds of up to 60 miles per hour (Allison and Egan n.d., JMA 2005; Kroplick and Velocci 2008; Kroplick 2008; Dolkart 2002). The Long Island Motor Parkway also utilized a series of toll lodges, including the Garden City Toll Lodge formerly located on Clinton Road west of the APE and relocated for secondary use to Seventh Street in the Village of Garden City (JMA 2005; Kroplick and Velocci 2008; Velocci 2004; Dolkart 2002). The Long Island Motor Parkway was closed to motorists in 1938 and subsequently subdivided among state and county agencies. As a result, these segments were redeveloped for a variety of purposes, including residential development, utility installations and green space, or incorporated into other roadways (JMA 2005; Kroplick and Velocci 2008; Dolkart 2002). While many sections of the Long Island Motor Parkway were dismantled through this process of redevelopment, several sections of the Long Island Motor Parkway remain in the three counties. Most notably, two sections of the Long Island Motor Parkway in Queens County are listed on the State and National Registers of Historic Places (SR: 1/22/2002; NR 4/1/2002) for their significance as a major development in the history of transportation and recreation, and because they embody distinctive characteristics of an automobile parkway, the first of its kind in the country (Dolkart 2002). A surviving 137.2 meter (450-foot) segment of the Long Island Motor Parkway is located within the APE.

The portion of the APE south of Stewart Avenue was undeveloped in the early nineteenth century according to an 1837 map (JMA 2005: Figure 6); however, by 1873, the Beers atlas indicates that the Central Railroad of Long Island had been built south of the APE. Clinton Road was extant at that time as was another unnamed road crossing Clinton Road near

the railroad and possibly extending through the APE. Other streets on the Beers atlas are shown with dashed lines as paper streets. A structure attributed to A.T. Stewart is close to the approximate location of the southwestern end of the APE (JMA 2005: Figure 7). This structure, one of several shown on the map attributed to A.T. Stewart, may have been a tenant or investment property, part of the Stewarts' Village of Garden City building project, given that the wealthy Stewarts lived in Manhattan (Elias 1992). The 1906 Belcher-Hyde Map of Long Island indicates the location of the Long Island Motor Parkway, on which construction began in 1908 and opened in 1911, and Stewart Avenue. No structures are shown within the APE (JMA 2005: Figure 8). The 1903 Hempstead U.S.G.S. Quadrangle Map indicates that a roadway, (mentioned above) extended through a portion of the APE at the southwest end. The 1914 Belcher-Hyde Atlas of Long Island does not indicate any development within the APE or between the Long Island Motor Parkway and the Long Island Railroad. The 1918 Camp Mills U.S.G.S. Quadrangle Map shows a similar road. No structures are shown on these early U.S.G.S. quadrangles. The 1927 Belcher-Hyde Map of Long Island shows that a structure associated with the Curtiss Engineering Corp. was located near the intersection of Clinton Road and the Long Island Railroad, south of the southwestern terminus of the APE (Figure 3). In 1935, the portions of the APE north of the Long Island Motor Parkway were within the former Old Westbury Golf Course and the portions south of the Long Island Motor Parkway were part of the Curtiss Factory (JMA 2005: Figure 7). Glenn Curtiss was an aviation pioneer and inventor whose aircraft factory was located at the corner of Clinton Road and Stewart Avenue near the APE (JMA 2005: 15).

Based on the history of local development, JMA (2005) assessed the historic archaeological sensitivity of the APE as low to medium. Based on environmental characteristics and the lack of a significant source of freshwater in the vicinity, JMA (2005) assessed the prehistoric archaeological sensitivity of the APE as low.

For the current study, background research concluded that the portion of the APE not previously assessed by JMA also has low sensitivity for prehistoric resources. Based on the proximity of the A.T. Stewart structure mapped in 1873 and Curtiss Engineering Corp. structure mapped in 1927, both west of but near the southwest terminus of the APE, the potential for historic archaeological resources was considered moderate in that area. A modern bank building is present in the approximate location of the former Curtiss building.

A Phase IB cultural resources survey in undeveloped portions of the "Source Area", which includes the APE, was previously recommended by JMA (2005). RGA also recommended a Phase IB survey of the undisturbed portions of the APE that were not previously assessed by JMA. JMA also recommended a Phase II analysis of remnants of the Long Island Motor Parkway proximate to the APE in the event that "remediation activities are to take place within the vicinity" (JMA 2005: 20).

Prior Disturbance

The APE is located within the former boundaries of the western portion of Roosevelt Field, a facility extensively developed during the early to mid-twentieth century. The southwestern portion of Roosevelt Field later became the Old Westbury Country Club. Beginning in 1952, the northern portion of the APE was developed as the Garden City Pumping Station from a portion of the Old Westbury Country Club. The establishment of the Stewart Elementary School ball fields may have necessitated some leveling and grading; it was observed that the ball field, where STPs 1-5 were placed, was two to three feet higher topographically than the school yard, possibly due to filling or grading (Photograph 1). At the eastern end of the ball field, an unimproved gravel road extends north from Stewart Avenue (Photograph 2). Approximately 131 meters (400 feet) of the western end of the southwestern portion of the APE south of Stewart Avenue was disturbed by grading, construction of a road, and storage for heavy equipment (Photograph 3). As a result, portions of the APE have been previously disturbed by demolition, grading and construction activities. Underground utilities also exist within and adjacent to these portions of the APE.

The previous Phase IA cultural resources survey completed for this project (JMA 2005) noted the presence of a remnant section of the Long Island Motor Parkway. This surviving segment of the Long Island Motor Parkway consists of the eastern bridge embankment of the Parkway's Clinton Road Bridge and a 0.3 kilometer (0.2 mile) segment of the Parkway roadbed. Features related to the Long Island Motor Parkway within the APE include the asphalt road bed, several concrete guard rail posts that formerly would have contained cable guard rails, and concrete curbs that did not appear to be intact (Photographs 4-8). Proposed impacts to the surviving segment of the Long Island Motor Parkway as part of the proposed remediation project consist of the placement of a trench to carry the six-inch pipeline within the roadbed. Based on a February 11, 2013 email from Lorraine Weiss of the OPRHP, the portion of the Long Island Motor Parkway within the APE is considered to lack "integrity of setting, design, materials, craftsmanship, and feeling" (see Appendix C) and is considered ineligible for listing on the State and National Registers of Historic Places.

PHASE IB FIELD INVESTIGATION

Research Goals and Design

The purpose of the Phase IB cultural resources survey is to identify any potentially significant archaeological resources within the APE. Based on the low to medium sensitivity for prehistoric and historic archaeological resources, a subsurface testing strategy was devised to sample and identify potentially intact archaeological deposits within the APE. Background research completed during the 2005 Phase IA cultural resources survey and the current survey indicated that a historic site, if present, would likely be located within the ball field or near Stewart Avenue. All undisturbed portions of the APE were tested in accordance with the standards of the New York Archaeological Council (1994).

National Register of Historic Places Criteria

Potentially significant historic properties include districts, structures, objects, or sites which are at least 50 years old and which meet at least one National Register criterion. Criteria used in the evaluation process are specified in the Code of Federal Regulations, Title 36, Part 60, National Register of Historic Places (36 CFR 60.4). To be eligible for inclusion in the National Register of Historic Places, a historic property(s) must possess:

the quality of significance in American History, architecture, archaeology, engineering, and culture [that] is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history, or
- (b) that are associated with the lives of persons significant in our past, or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components lack individual distinction, or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

The physical characteristics and historic significance of the overall property are examined when conducting National Register evaluations. While a property in its entirety may be considered eligible based on Criteria A, B, C, and/or D, specific data is also required for individual components therein based on date, function, history, and physical characteristics, and other information. Resources that do not relate in a significant way to the overall property may contribute if they independently meet the National Register criteria.

A contributing building, site, structure, or object adds to the historic architectural qualities, historic associations, or archaeological values for which a property is significant because a) it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period, or b) it independently meets the National Register criteria. A non-contributing building, site, structure, or object does not add to the historic architectural qualities, historic associations, or archaeological values for which a property is significant because a) it was not present during the period of significance, b) it no longer possesses historic integrity reflecting its character at that time or is incapable of yielding important information about the period, due to alterations, disturbances, additions, or other changes, or c) it does not independently meet the National Register criteria.

State Historic Preservation Office/New York State Office of Parks, Recreation and Historic Preservation Human Remains Discovery Protocol

In the event that human remains are encountered during construction or archaeological investigations, the State Historic Preservation Office (SHPO) requires that the following protocol is implemented:

- At all times human remains must be treated with the utmost dignity and respect. Should human remains be encountered work in the general area of the discovery will stop immediately and the location will be immediately secured and protected from damage and disturbance.

- Human remains or associated artifacts will be left in place and not disturbed. No skeletal remains or materials associated with the remains will be collected or removed until appropriate consultation has taken place and a plan of action has been developed.
- The county coroner and local law enforcement as well as the SHPO and the involved agency will be notified immediately. The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archeological. If the remains are archeological in nature, a bioarchaeologist will confirm the identification as human.
- If human remains are determined to be Native American, the remains will be left in place and protected from further disturbance until a plan for their protection or removal can be generated. The involved agency will consult SHPO and appropriate Native American groups to determine a plan of action that is consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) guidance.
- If human remains are determined to be Euro-American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated. Consultation with the SHPO and other appropriate parties will be required to determine a plan of action.

Field Methods and Procedures

Subsurface archaeological testing was undertaken in the APE to identify intact potentially significant archaeological resources. The Standards of the New York Archaeological Council require the completion of STPs at 15-meter (50-foot) sampling intervals.

The APE consists of six segments as previously described (see Figure 2). Section A extends along the south side of Stewart Avenue from the proposed extraction well east of the intersection of Stewart Avenue and Clinton Road for approximately 250 meters (820 feet); Section B turns north for 22.8 meters (75 feet), crossing Stewart Avenue via horizontal directional drilling (HDD), then crossing the Stewart Avenue Elementary School Park parking lot; Section C turns east for 61 meters (200 feet) along a fence line dividing the ball field from the parking lot; Section D turns north for 192 meters (630 feet) in an unimproved roadway along the eastern perimeter of the park's ball fields, and crosses a wooded area north of the ball field via HDD; Section E extends west for 137.2 meters (450 feet) within the roadbed of the former Long Island Motor Parkway corridor within Block 77, Lot 2; and Section F turns north for 103.6 meters (340 feet) then turn west for 18.3 meters (60 feet).

Testing was undertaken in all undisturbed areas based on the results of the Phase IA research. Existing roads and fence lines were used for orientation and STPs were placed using compasses and tape measures. One transect of STPs was plotted and excavated on the pipeline centerline. Shovel test pits were assigned sequential numbers from 1-31. In Section D, 12 STPs (5-17) were offset approximately one meter to the west and placed within an edge of the grassy ball field rather than the unimproved gravel road although they were still within the 15-meter wide APE corridor (see Figure 2). Planned 15-meter interval STPs in the western portion of Section A were not excavated due to disturbance by the placement of heavy equipment, grading, and construction of a roadway. Instead STPs 28 and 29 were placed judgmentally in grassy areas without visible disturbance. No testing was proposed in Section F due to its low archaeological sensitivity (see JMA 2005). However, two STPs (30 and 31) were placed judgmentally in Section F to document its degree of disturbance and potential for archaeological resources. No testing was conducted in Section E, where the APE extended through the asphalt roadbed of the Long Island Motor Parkway (see Photographs 4-8).

The STPs were excavated at 15-meter (50-foot) intervals. The location of each STP was plotted on a project base map (see Figure 2). Shovel test pits measured approximately 45 centimeters (18 inches) in diameter and extended into culturally sterile subsoils. All soils were sifted through six-millimeter (1/4-inch) wire mesh screen in order to recover all artifacts, regardless of age or cultural affiliation. Crew members recorded soil information on standardized field forms (see Appendix A). Shovel test pits were immediately backfilled and the ground surface restored to original contours following the completion of each STP. All field notes, photographs, project documents, and artifacts are housed at RGA headquarters in Cranbury, New Jersey.

Results

Shovel testing and a visual inspection of the APE were performed on January 21 and 22, 2013 to locate potentially significant archaeological resources and to assess the degree of prior disturbance in the various segments of the APE. Weather conditions during the field survey varied from overcast with light snow to clear, sunny and dry. Surface visibility of the ground surface was low due to a cover of turf grasses in most areas. Weeds, vines, and shrubs were present at the northern end of the ball field.

Sections A and B

The portion of the APE south of Stewart Avenue (Sections A and B) was characterized as manicured lawn with large hardwood trees in a park-like setting and areas of disturbance due to roadways and the placement of heavy equipment (Photographs 9-13, see Photograph 3). A transect of 10 STPs (18-27) was completed in this area between an access road to a Federal Express facility and the eastern end of the section (see Figure 2). Two judgmental STPs (28 and 29) were completed west of the access road (see Photograph 12). In this area, STP 19 contained natural soils consisting of dark brown sandy loam A-horizon overlying yellowish brown coarse pebbly sand B-horizon (see Figure 2; see Appendix A). The remaining STP soil profiles in this area contained fills. In STPs 23, 24, 25, and 26, fills overlay truncated natural soil profiles with only a yellowish brown sandy loam B-horizon. In STPs 18, 28, and 29 located east and west of the Federal Express driveway and other commercial structures, fills overlay a natural soil profile of very dark gray or brown sandy loam buried A- (Ab-) horizon (topsoil) and yellowish brown pebbly sandy loam B-horizon (subsoil). The remaining STP soil profiles in this area, including STPs 20, 22, and 27, contained fill deposits to a depth of one meter (3.3 feet) below the ground surface with no natural soils encountered. Fill deposits ranged in color, texture, and thickness. Colors included gray, very dark grayish brown, dark brown, dark yellowish brown, brown, olive yellow, or mottled. Texture varied between silt loam, sandy loam, coarse sand, or asphalt and gravel. Fill occurred in one to four layers ranging in thickness from 7 to 68 centimeters (0.2 to 2.2 feet).

Only three STPs (20, 23, and 27) contained artifacts recovered from upper fill (Fill 1) layers (see Appendices A and B). No artifacts were recovered deeper than 40 centimeters (16 inches) below ground surface. No artifacts were recovered in A horizon, B horizon, or C horizon contexts.

Recovered artifacts from STPs 20, 23, and 27 (n=23) were identified as late nineteenth to twentieth century vessel glass, window glass, coal, wire nails, slag, unidentified melted glass fragments, a sherd of late nineteenth century decorated whiteware, a burnt ceramic, and a sherd of unidentified porcelain, possibly fragments of a bathroom sink or toilet (see Appendix B). Modern bottle glass, wood, plastic, and asphalt from fill contexts were recorded on field forms, but not retained (see Appendix A). Non-diagnostic, ubiquitous materials, such as coal, coal ash, slag, and asphalt, were sampled (see Appendix B). The artifact assemblage was composed of a mix of late nineteenth and twentieth century materials, with vessel glass the most common item.

Sections C and D

A transect of 17 STPs (1-17) was completed in Sections C and D along the fence line at the southern end of the ball field running east for 61 meters (200 feet) then turning north for 192 meters (630 feet) along an unimproved road (Photographs 14-17; see Figure 2; see Photographs 1 and 2). In this area, STP 12 contained natural soils consisting of brown sandy silt A-horizon overlying yellowish brown sandy loam B-horizon (see Appendix A). The remaining STP soil profiles in this area contained fills. In STPs 6, 11, 14 and 15, fills overlay a truncated natural soil profile consisting of brownish yellow or yellowish brown coarse sand, sandy silt, or clay B-horizon. In STPs 8, 9, 10, and 13, fills overlay a natural soil profile consisting of a dark gray to very dark grayish brown sandy silt, silty clay, or sand loam Ab-horizon and yellowish brown or dark yellowish brown pebbly sandy loam B-horizon. In STPs 1- 5, 7, 16, and 17, fill deposits extended to the depth of the excavations, one meter (3.3 feet) or greater below the ground surface with no natural soils encountered. Fill deposits in this area also varied in soil color, texture, and thickness. Fill colors included black, pale yellow, light yellowish brown, strong brown, very dark grayish brown, grayish brown, dark brown, dark yellowish brown, brownish yellow, brown, very dark gray, as well as mottled combinations of these colors. Soil textures included silt or sandy loam with pebbles, sandy silt, or coarse sand. One to six fill layers found in STPs ranged in thickness from 17 to 68 centimeters (0.6 to 2.2 feet).

Eight STPs (2, 3, 6, 7, 8, 9, 10, and 11) contained 192 artifacts. These were recovered from Fill 1-3 layers and an Ab-horizon in STP 9 (see Appendices A and B). Artifacts were recovered in fill and from Ab-horizon contexts to a depth of 58 centimeters (23 inches) below ground surface. No artifacts were recovered in B horizon or C horizon contexts.

Recovered artifacts included 58 fragments of nineteenth to twentieth century vessel glass, 29 fragments of window glass, coal, coal ash, slag, wire (n=36) and cut (n=34) nails, a claw hammer head, other iron hardware, sherds of post-1820 whiteware (n=3), a possible whiteware tile, one fragment of white granite ware (1842-1930), a brick fragment, a possible flower pot fragment, and two sherds of unidentified porcelain (see Appendix B).

Along the ball field fence line (Section C), two STPs contained a total of 11 historic artifacts. Vessel glass and sampled coal, coal ash, and slag were recovered from STP 2 and a sherd of white granite ware was recovered from STP 3. Modern bottle glass and plastic from fill contexts in these STPs were recorded on field forms, but not retained (see Appendix A). Non-diagnostic materials such as coal, coal ash, and slag were sampled (see Appendix B).

Six STPs in the southern portion of Section D of the APE along the eastern end of the ball field contained historic artifacts. Most of these were low numbers of nineteenth and twentieth century artifacts, ranging from nine-13 artifacts in STPs 6-8 and 10. However, greater numbers were located in STPs 9 (n=88) and 11 (n=48) (see Figure 2). In STP 11, a large number of vessel glass fragments were located, many of them parts of a single possible twentieth century syrup bottle. Artifacts recovered from STP 9, included a number of cut and wire nails and smaller amounts of window and vessel glass, a whiteware tile, and a flower pot fragment. Architectural artifacts such as nails, window glass, and concrete made up more than half of the artifact assemblage in this area. No historic features were located and there was no other indication of the presence of a structure in this area. Given the mixing of artifact manufacture date ranges and small size of glass and ceramic artifacts, the artifacts are interpreted as secondary distribution within fill present across the ball field rather than an indication of a potentially significant historic deposit.

Section E

No testing was conducted in Section E.

Section F

Two STPs (30-31) were completed in Section F, adjacent to the eastern fence of the Garden City Pumping Station and the water tank (Photograph 18, see Figure 2). These STPs contained two fill layers overlying a truncated natural soil profile of a yellowish brown coarse sand B-horizon. Fill deposits in this area included dark gray, dark gray mottled with brown, very dark brown, and brownish yellow mottled with dark grayish brown pebbly sandy loam 9- 24 centimeters thick (0.3 to 0.8 feet). No artifacts were recovered (see Appendix A).

CONCLUSIONS AND RECOMMENDATIONS

Richard Grubb & Associates completed a Phase IA/IB cultural resources survey for the proposed Old Roosevelt Field Contaminated Groundwater Area Superfund Site, Option 2 pipeline in the Village of Garden City, Nassau County, New York. The Phase IA/IB cultural resources survey included a visual inspection and the excavation of 31 STPs throughout the APE. The results of subsurface testing indicate that significant previous disturbance has occurred within the APE as evidenced by the presence of fill layers and truncated soil profiles. No potentially significant historic or prehistoric cultural resources were identified by the shovel testing. Shovel testing confirmed the low potential of most of the APE to contain significant cultural resources.

Visual reconnaissance determined that a portion of the project (Section E) contains a 137.2 meter (450-foot) segment of the Long Island Motor Parkway (1908-1938), including an asphalt road bed, non intact concrete guard rail posts (that formerly would have contained cable guard rails), and concrete curbs. Based on the February 11, 2013 correspondence with the New York State Division for Historic Preservation/OPRHP, the portion of the Long Island Motor Parkway within the APE is considered to lack "integrity of setting, design, materials, craftsmanship, and feeling" (see Appendix C). Therefore, no further evaluation of the Long Island Motor Parkway for its eligibility for the New York and National Registers of Historic Places within the APE is required. Based on the background research and prior disturbances, this area is considered to have low potential for significant archaeological resources. Richard Grubb & Associates recommends no further cultural resources survey.

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FIGURES:

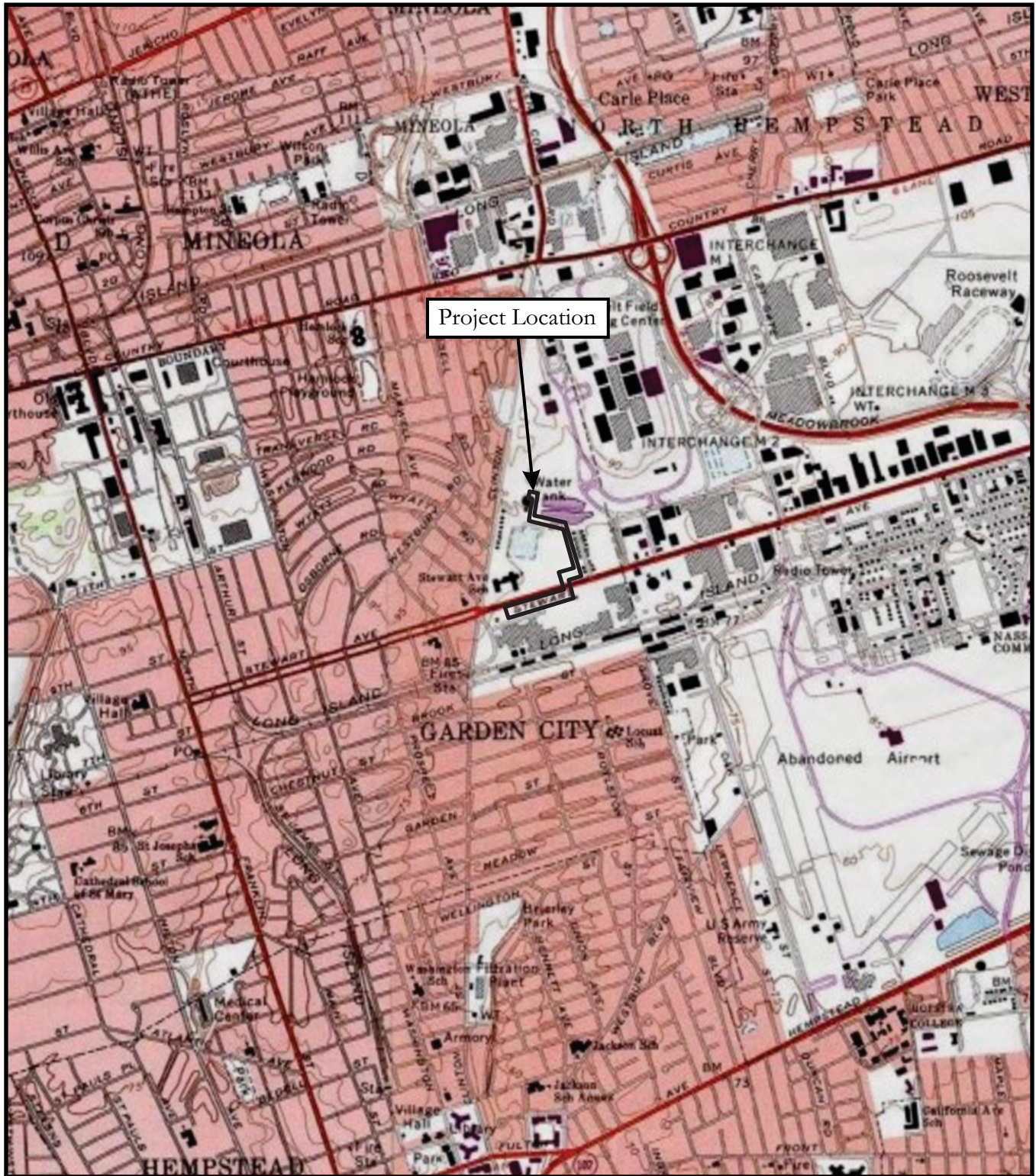


Figure 1:

U.S.G.S. Map (from U.S.G.S. 7.5' Quadrangles: 1969 Lynbrook, NY and 1969 Freeport, NY [photorevised 1979]).



Feet
0 2000



Key:
--- Area of Potential Effects (APE)
A Sections of Linear Pipeline
● STP - Historic Cultural Material
○ STP - No Cultural Material
x Photo Location and Direction



■ Extraction Well
● Monitoring Well
● Multiport Well
● Pumping Well
--- Pipe Run (2,815 ft.)
□ Nassau County Parcel Lines
□ Survey Boundary

0 75 150
Feet

Figure 2
Civil Survey Area
Old Roosevelt Field Contaminated Groundwater Site
Garden City, New York

Figure 2: Aerial map showing the location of the APE, shovel test pits, and photographs.

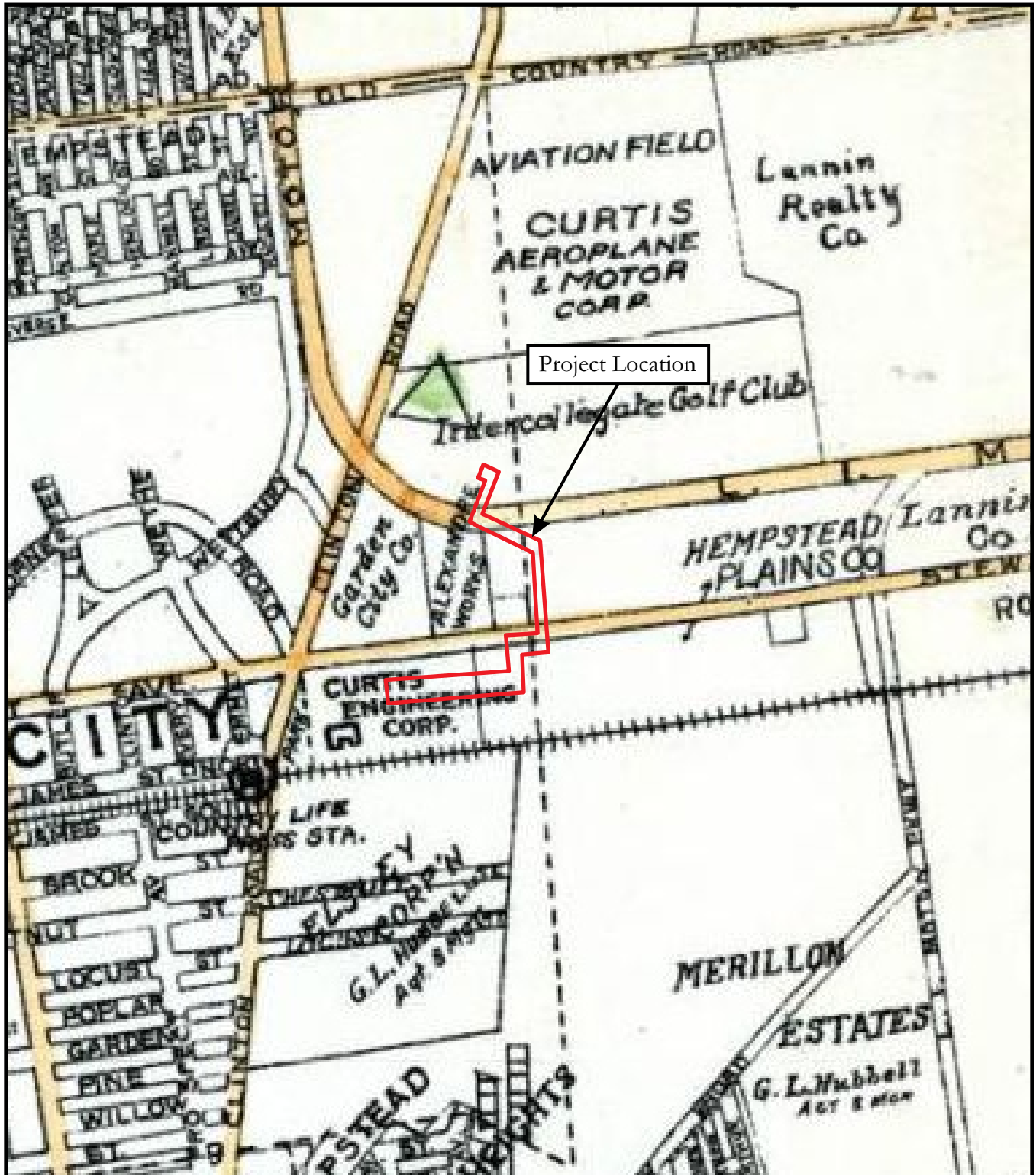
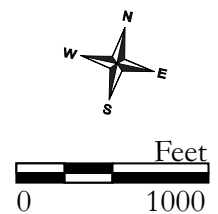


Figure 3:

1927 E. Belcher-Hyde, Map of Nassau County, Long Island, New York.



PHOTOGRAPHS (SEE FIGURE 2 FOR PHOTOGRAPH LOCATIONS):



Photograph 1:

Overview of Section C of the APE showing the ball field elevation in relationship to the school yard to the west.

Photo view: East

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 2:

Unimproved roadway on the eastern edge of the ball field (Section D). STPs 6-17 were placed adjacent to this roadway in the grass field.

Photo view: North

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 3:

Disturbances noted in the western portion of Section A of the APE. Note: the green roofed building in the background is a modern bank building that is in the approximate location of the A.T. Stewart structure shown on the 1873 Beers atlas and the Curtiss Engineering Corp. on the 1927 Belcher-Hyde map.

Photo view: West

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 4:

Portions of the Long Island Motor Parkway within the APE (Section E).

Photo view: West

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 5:

Portions of the Long Island Motor Parkway within the APE (Section E).

Photo view: West

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 6:

Portions of the Long Island Motor Parkway within the APE (Section E).

Photo view: East

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 7:

Portions of the Long Island Motor Parkway within the APE (Section E) showing remains of concrete guard rail posts near a modern house.

Photo view: Southwest

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 8:

Portions of the Long Island Motor Parkway within the APE (Section E) showing remains of concrete guard rail posts and curbs.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 9:

Park-like setting in the eastern end of Section A of the APE.

Photo view: East

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 10:

Work in progress in the eastern end of Section A of the APE. The National Register-eligible Stewart Elementary School is in the background across Stewart Avenue.

Photo view: Northwest

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 11:

Work in progress in the eastern end of Section A of the APE.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 12:

Work in progress on STP 28 in the western end of Section A of the APE. These STPs were placed in undisturbed grassy areas adjacent to the APE.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 13:

Portion of the APE that extends through the Stewart Elementary School ball field parking lot and across Stewart Avenue (Section B). Horizontal directional drilling is proposed to carry the pipeline across Stewart Avenue.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013



Photograph 14:

Area of STPs 1-5 alongside the fence at the south end of the ball field
(Section C).

Photo view: West

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 15:

Area of STPs 1-5 alongside the fence at the southern end of the ball field (Section C).

Photo view: East

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 16:

Area of STPs 6-17 at the northern end of the ball field (Section D).

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 17:

Northern end of Section D of the APE in the location of a fenced wooded area adjacent to the former Long Island Motor Parkway. Horizontal directional drilling is proposed to carry the pipeline through this area.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 21, 2013



Photograph 18:

Section F of the APE adjacent to the eastern fence of the Garden City Pumping Station and the water tank where STPs 30 and 31 were placed. A large stormwater basin is located to the east.

Photo view: South

Photographer: Ilene Grossman-Bailey

Date: January 22, 2013

APPENDIX A: SHOVEL TEST PIT LOG

APPENDIX A: SHOVEL TEST PIT LOG

| TEST | DEPTH cm (feet) | STRATUM | COLOR | TEXTURE | ARTIFACTS/ COMMENTS * |
|-----------------|------------------------|----------------|----------------------|----------------|----------------------------------|
| 1 | 00-23 (0.0-0.75) | Fill 1 | Blk | Sa | NR (Slag, Asphalt) |
| | 23-47 (0.75-1.54) | Fill 2 | Dk Brn | Sa/Pbs | NCM |
| | 47-80 (1.54-2.66) | Fill 3 | Dk YBrn | Sa/Pbs | NCM |
| | 80-100 (2.66-3.28) | Fill 4 | Blk / VDk GryBrn | Sa/Pbs | NCM |
| 2 | 00-27 (0.0-0.89) | Fill 1 | Dk Brn | SaLo/Pbs | CM |
| | 27-58 (0.89-1.9) | Fill 2 | Lt Y | SaLo/Pbs | CM |
| | 58-70 (1.9-2.3) | Fill 3 | StrBrn / BrnY | SaLo/Pbs & Cbs | NCM |
| | 70-100 (2.3-3.28) | Fill 4 | Gry / VDk Gry | SaLo/Pbs & Cbs | NCM |
| Stopped By Rock | | | | | |
| 3 | 00-30 (0.0-0.98) | Fill 1 | VDk Gry | SiLo | NR (Plastic, Colorless Glass) |
| | 30-46 (0.98-1.51) | Fill 2 | Dk GryBrn / Dk YBrn | SaLo/Pbs | CM |
| | 46-60 (1.51-1.97) | Fill 3 | YBrn | ClLo/Pbs | NR (Coal, Coal Ash, Slag) |
| | 60-100 (1.97-3.28) | Fill 4 | Dk YBrn | SaClLo/Pbs | NCM |
| 4 | 00-27 (0.0-0.89) | Fill 1 | Dk GryBrn | SaSi/Pbs | NCM |
| | 27-63 (0.89-2.07) | Fill 2 | Dk Brn | Sa/Pbs | NCM |
| | 63-57 (2.07-2.85) | Fill 3 | BrnY / YBrn | Sa/Pbs | NCM |
| | 87-100 (2.85-3.28) | Fill 4 | Blk / VDk GryBrn | Sa/Pbs | NCM |
| 5 | 00-16 (0.0-0.53) | Fill 1 | Brn | SaLo/Pbs | NCM |
| | 100-125 (3.28-4.1) | Fill 6 | YBrn / YBrn & StrBrn | SaLo/Pbs & Cbs | NCM |
| | 16-20 (0.53-0.66) | Fill 2 | YBrn | SaLo/Pbs | NCM |
| | 28-40 (0.66-1.31) | Fill 3 | VDk GryBrn | SaSi/Pbs | NCM |
| | 40-70 (1.31-2.3) | Fill 4 | BrnY / Lt YBrn | SaLo/Pbs | NCM |
| | 70-100 (2.3-3.28) | Fill 5 | Blk | SaSi/Pbs | NCM |
| 6 | 00-13 (0.0-0.43) | Fill 1 | Dk Brn | ClLo | NCM |
| | 13-30 (0.43-0.98) | Fill 2 | YBrn | SaCl | CM |
| | 30-50 (0.98-1.64) | Fill 3 | VDk GryBrn | Cl | CM |
| | 50-75 (1.64-2.46) | B | YBrn | Cl | NCM |
| 7 | 00-23 (0.0-0.75) | Fill 1 | Dk GryBrn | SaSi/Pbs | NCM |
| | 23-46 (0.75-1.51) | Fill 2 | Dk GryBrn | SaSi/Pbs | CM |
| | 46-100 (1.51-3.28) | Fill 3 | BrnY | Sa/Pbs | NCM |
| 8 | 00-13 (0.0-0.43) | Fill 1 | Brn | SiLo | NCM |
| | 13-27 (0.43-0.89) | Fill 2 | Dk GryBrn | SiLo/Rts | CM |
| | 27-40 (0.89-1.31) | Ab | Dk GryBrn | SiClLo | CM |
| | 40-70 (1.31-2.3) | B | Dk YBrn | SiClLo | NCM |
| 9 | 00-30 (0.0-0.98) | Fill | Dk GryBrn | SaSi/Pbs | CM |
| | 30-58 (0.98-1.9) | Ab | VDk GryBrn | SaSi/Pbs | CM |
| | 58-82 (1.9-2.69) | B | YBrn | SaSi | NCM |
| 10 | 00-15 (0.0-0.49) | Fill 1 | Dk GryBrn | SiLo/Rts | NCM |
| | 15-25 (0.49-0.82) | Fill 2 | YBrn | Sa/Pbs | CM |
| | 25-46 (0.82-1.51) | A1 | VDk GryBrn | Sa/Pbs | NCM |
| | 46-52 (1.51-1.71) | A2 | VDk Gry | Sa/Pbs | NCM |
| | 52-76 (1.71-2.49) | B | YBrn | Sa/Pbs | NCM |

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS *</u> |
|--------------------|-------------------------------|-----------------------|----------------------|-----------------------|---|
| 11 | 00-15 (0.0-0.49) | Fill 1 | VDk GryBrn | SaLo | CM |
| | 15-27 (0.49-0.89) | Fill 2 | VDk GryBrn | SaLo/Grl | NCM |
| | 27-44 (0.89-1.44) | Fill 3 | Brn | SaLo | CM |
| | 44-65 (1.44-2.13) | B | YBrn | ClLo | NCM |
| 12 | 00-20 (0.0-0.66) | Ap | Brn | SaSi/Pbs | NR (Coal) |
| | 20-45 (0.66-1.48) | B | YBrn | SaLo/Pbs | NCM |
| 13 | 00-13 (0.0-0.43) | Fill 1 | VDk Gry | SiLo | NCM |
| | 13-23 (0.43-0.76) | Fill 2 | Blk | Asphalt & Slag | NCM |
| | 23-40 (0.76-1.31) | Ab | Dk YBrn | SaLo/Pbs | NCM |
| | 40-65 (1.31-2.13) | B | Dk YBrn | Sa/Pbs | NCM |
| 14 | 00-22 (0.0-0.72) | Fill 1 | Dk GryBrn / VDk Gry | SaLo/Pbs | NR (Coal, Coal Ash, Slag) |
| | 22-30 (0.72-0.98) | Fill 2 | GryBrn | SaLo | NR (Coal, Coal Ash, Slag) |
| | 30-50 (0.98-1.64) | Fill 3 | YBrn / Brn | Sa/Cbs | NCM |
| | 50-70 (1.64-2.3) | B | BrnY | Sa/Cbs & Pbs | NCM |
| 15 | 00-18 (0.0-0.59) | Fill 1 | Dk GryBrn | SiLo/Grl | NR (Plastic, Modern Bottle Glass) |
| | 18-27 (0.59-0.89) | Fill 2 | VDk Gry | SaSi/Grl | NCM |
| | 27-39 (0.89-1.28) | B1 | YBrn | SaSi | NCM |
| | 39-60 (1.28-1.97) | B2 | YBrn | SaSi/Pbs | NCM |
| 16 | 00-30 (0.0-0.98) | Fill 1 | Dk GryBrn | SiLo/Pbs | NCM |
| | 30-40 (0.98-1.31) | Fill 2 | Brn | SiLo/Pbs | NCM |
| | 40-60 (1.32-1.97) | Fill 3 | Brn / Dk YBrn | SiLo/Pbs | NCM |
| | 60-100 (1.97-3.28) | Fill 4 | VDk GryBrn | SiClLo/Pbs | NCM |
| 17 | 00-17 (0.0-0.56) | Fill 1 | Dk GryBrn | Sa/Pbs | NR (Coal) |
| | 17-34 (0.56-1.12) | Fill 2 | VDk Gry / VDk GryBrn | SaLo/Pbs | NCM |
| | 34-100 (1.12-3.28) | Fill 3 | YBrn / BrnY & YBrn | SaClLo | NCM |
| 18 | 00-23 (0.0-0.75) | Fill | Dk GryBrn | SaSi/Pbs | NR (Wood, Plastic, Modern Glass) |
| | 23-47 (0.75-1.54) | Ab | VDk Gry | SaSi/Pbs | NCM |
| | 47-73 (1.54-2.4) | B | YBrn | SaSi/Pbs | NCM |
| 19 | 00-34 (0.0-1.12) | A | Dk Brn | SaLo/Pbs | NCM |
| | 34-60 (1.12-1.97) | B | YBrn | Sa/Pbs | NCM |
| 20 | 00-38 (0.0-1.25) | Fill 1 | VDk GryBrn | SiLo | CM |
| | 38-100 (1.25-3.3) | Fill 2 | YBrn / Brn | Sa | NR (Colorless Glass) |
| 21 | 00-33 (0.0-1.03) | Fill 1 | VDk GryBrn | SaLo/Pbs | NR (Coal) |
| | 33-62 (1.03-2.03) | Fill 2 | Dk YBrn | SaLo/Pbs | NCM |
| | 62-100 (2.03-3.28) | Fill 3 | BrnY / Y & YBrn | Sa/Pbs | NCM |
| 22 | 00-32 (0.0-1.05) | Fill 1 | Dk GryBrn | SiLo/Pbs | NCM |
| | 32-100 (1.05-3.28) | Fill 2 | YBrn / BrnY | Sa/Pbs | NCM |

| <u>TEST</u> | <u>DEPTH cm (feet)</u> | <u>STRATUM</u> | <u>COLOR</u> | <u>TEXTURE</u> | <u>ARTIFACTS/ COMMENTS *</u> |
|--------------------|-------------------------------|-----------------------|---------------------|-----------------------|---|
| 23 | 00-40 (0.0-1.31) | Fill 1 | VDk GryBrn | SaSi/Pbs | CM |
| | 40-57 (1.31-1.87) | Fill 2 | BrnY | Sa/Pbs | NCM |
| | 57-77 (1.87-2.53) | B | YBrn | SaSi/Pbs | NCM |
| 24 | 00-30 (0.0-0.98) | Fill | DkBrn / DkGryBrn | SaLo/Pbs | NCM |
| | 30-60 (0.98-1.97) | B | BrnY | Sa/Pbs | NCM |
| 25 | 00-17 (0.0-0.56) | Fill 1 | DGryBrn | SaLo/Pbs | NCM |
| | 17-32 (0.56-1.05) | Fill 2 | Brn / Y & YBrn | SaLo/Pbs | NCM |
| | 32-50 (1.05-1.64) | Fill 3 | Dk YBrn | SaLo/Pbs | NCM |
| | 50-62 (1.64-2.03) | Fill 4 | StrBrn | SaLo/Pbs | NCM |
| | 62-82 (2.03-2.69) | B | BrnY | Sa/Pbs | NCM |
| 26 | 00-21 (0.0-0.69) | Fill 1 | VDk GryBrn | SaSi/Pbs | NR (Modern Bottle Glass) |
| | 21-47 (0.69-1.54) | Fill 2 | Brn | Sa/Pbs | NCM |
| | 47-67 (1.54-2.2) | B | YBrn | SaSi/Pbs | NCM |
| 27 | 00-37 (0.0-1.22) | Fill 1 | VDk GryBrn | SaSi/Pbs | CM |
| | 37-65 (1.22-2.13) | Fill 2 | StrBrn / BrnY | Sa/Pbs | NCM |
| | 65-100 (2.13-3.28) | Fill 3 | YBrn / BrnY | Sa/Pbs | NCM |
| 28 | 00-19 (0.0-0.63) | Fill 1 | VDk GryBrn | SiLo | NCM |
| | 19-26 (0.63-0.85) | Fill 2 | Gry | Grl | NR (Slag, Asphalt) |
| | 26-36 (0.85-1.18) | Ab | Brn | SaLo | NCM |
| | 36-60 (1.18-1.97) | B | YBrn | SaLo/Pbs | NCM |
| 29 | 00-20 (0.0-0.7) | Fill 1 | VDk GryBrn | SiLo | NCM |
| | 20-34 (0.7-1.12) | Fill 2 | Gry | Grl | NR (Slag, Asphalt) |
| | 34-50 (1.12-1.65) | Ab | Brn | SaLo | NCM |
| | 50-70 (1.65-2.3) | B | YBrn | SaLo/Pbs | NCM |
| 30 | 00-24 (0.0-0.79) | Fill 1 | Dk Gry / Brn | SaLo/Pbs | NCM |
| | 24-33 (0.79-1.08) | Fill 2 | VDk Brn | SaLo/Pbs | NCM |
| | 33-50 (1.08-1.64) | B | YBrn | Sa/Pbs | NCM |
| 31 | 00-18 (0.0-0.59) | Fill 1 | Dk Gry | SaLo | NCM |
| | 18-33 (0.59-1.08) | Fill 2 | BrnY / Dk GryBrn | SaLo/Pbs | NCM |
| | 33-55 (1.08-1.8) | B | YBrn | SaCl/Pbs | NCM |

Key:

NCM = No Cultural Material

NR = Not Retained

CM = Cultural Material

Shade: Lt - Light, Dk - Dark, V - Very

Color: Blk - Black, Brn - Brown, Gry - Gray, Y - Yellow, GBrn - Gray Brown, YBrn - Yellow Brown

Soils: Lo - Loam, Si - Silt, Sa - Sand

Other: Grl - Gravel, Cbs - Cobbles, Pbs - Pebbles, Rts - Roots, / - Mottled

*All STPs were placed on level, 0-3 percent sloped, well drained soils within the Hempstead Plain portion of the Atlantic Coastal Plain of New York

APPENDIX B: ARTIFACT CATALOG

APPENDIX D: HISTORIC ARTIFACT CATALOG

| <u>CATALOG #</u> | <u>TEST #</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>ARTIFACT MATERIAL</u> | <u>ARTIFACT CLASS</u> | <u>ARTIFACT TYPE</u> | <u>DESCRIPTION</u> | <u>MEASUREMENTS/ COMMENTS/DATES</u> |
|------------------|---------------|--------------|---------------|----------------|--------------|--------------|--------------------------|-----------------------|----------------------|---|---|
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | DOM | Glass | Vessel | Bottle | Aqua shoulder/neck/finish fragment, double ring finish, no visible mold seam, numerous bubbles in glass | probably 19th-century |
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Aqua body fragment, might be part of bottle in previous entry | |
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | ARCH | Glass | Flat | Window | Aqua fragment, residue on one surface | |
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | FUEL | Coal | | | Fragment, partially burnt (sample) | 8.1 grams |
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | FUEL | Coal Ash | | | Fragment (sample) | 11.3 grams |
| 1 | 2 | 1 | 00-27 | Fill 1 | 1 | FUEL | Slag | | | Fragment (sample) | 2.7 grams |
| 2 | 2 | 2 | 27-58 | Fill 3 | 2 | DOM | Ceramic | Porcelain | Unidentified | Hard-paste body sherds with traces of former overglaze decal on one surface | |
| 2 | 2 | 2 | 27-58 | Fill 3 | 1 | FUEL | Coal | | | Fragment, partially burnt (sample) | 20.7 grams |
| 2 | 2 | 2 | 27-58 | Fill 3 | 2 | FUEL | Slag | | | Fragments (sample) | 27.2 grams |
| 3 | 3 | 2 | 30-46 | Fill 2 | 1 | DOM | Ceramic | White Granite | Hollowware | Undecorated rim sherd, possible lid, could be from a tea or coffee pot | ca. 1842-1930 (Miller 2000:13), 2" diameter rim |
| 4 | 6 | 2 | 13-30 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Whole, common | post-1879 (Wells 1998:92), 8 d. |
| 4 | 6 | 2 | 13-30 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Unidentified | Head fragment, probably wire, but rust spalled off of point end giving it a rectangular appearance | |
| 5 | 6 | 3 | 30-50 | Fill 2 | 1 | DOM | Ceramic | Whiteware | Unidentified | Undecorated body spall | post-1820 (Miller 2000:13) |
| 5 | 6 | 3 | 30-50 | Fill 2 | 5 | ARCH | Glass | Flat | Window | Aqua fragments | |
| 5 | 6 | 3 | 30-50 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Whole, common | post-1879 (Wells 1998:92), 9 d. |
| 5 | 6 | 3 | 30-50 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Head fragment, nearly whole | post-1879 (Wells 1998:92), ~ 3 1/2" long |
| 6 | 7 | 2 | 23-46 | Fill 2 | 2 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, two vessels, soda-lime glass | post-1864 (Miller 2000:8) |
| 6 | 7 | 2 | 23-46 | Fill 2 | 3 | ARCH | Glass | Flat | Window | Aqua fragments | |
| 6 | 7 | 2 | 23-46 | Fill 2 | 2 | ARCH | Ferrous Metal | Nail | Wire | Head and shaft fragments, mend, heavily corroded | post-1879 (Wells 1998:92) |
| 6 | 7 | 2 | 23-46 | Fill 2 | 1 | ARCH | Ceramic | Red Earthenware | Brick | Orange edge fragment (sample) | 342.1 grams |
| 6 | 7 | 2 | 23-46 | Fill 2 | 1 | ARCH | Lithic | Concrete | | Molded buff-colored fragment, sand tempered with quartz pebble inclusions | 885.6 grams, 2 5/16" wide, 2 1/8" thick |
| 6 | 7 | 2 | 23-46 | Fill 2 | 1 | FUEL | Coal | | | Fragment (sample) | 27.8 grams |
| 6 | 7 | 2 | 23-46 | Fill 2 | 2 | FUEL | Slag | | | Fragments (sample) | 30.4 grams |
| 6 | 7 | 2 | 23-46 | Fill 2 | 1 | MISC | Synthetic | Plastic | Drinking Straw | Fragment, white with red and yellow stripes | 20th-century |

| CATALOG # | TEST # | LEVEL | DEPTH* | STRATUM | COUNT | GROUP | ARTIFACT MATERIAL | ARTIFACT CLASS | ARTIFACT TYPE | DESCRIPTION | MEASUREMENTS/ COMMENTS/DATES |
|-----------|--------|-------|--------|---------|-------|-------|-------------------|-----------------|-------------------|---|---|
| 7 | 8 | 2 | 13-27 | Fill 2 | 1 | DOM | Glass | Vessel | Unidentified | Amber fragment with vertical stretch marks, possible bottle neck, bubbles in glass | possibly 19th-century |
| 7 | 8 | 2 | 13-27 | Fill 2 | 3 | ARCH | Glass | Flat | Window | Aqua fragments | post-1879 (Wells 1998:92), 2 d |
| 7 | 8 | 2 | 13-27 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Whole, roofing | |
| 7 | 8 | 2 | 13-27 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Head fragment, common | post-1879 (Wells 1998:92) |
| 8 | 8 | 3 | 27-40 | Ab | 1 | DOM | Glass | Vessel | Unidentified | Colorless body fragment, soda-lime glass | post-1864 (Miller 2000:8) |
| 8 | 8 | 3 | 27-40 | Ab | 2 | ARCH | Glass | Flat | Window | Aqua fragments | post-1879 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 1 | UNIID | Ceramic | Whiteware | White Earthenware | Undecorated edge fragment, possible tile | |
| 9 | 9 | 1 | 00-30 | Fill | 1 | UNIID | Ceramic | Red Earthenware | Unidentified | Unglazed exterior body spall, flat, possible tile or flower pot | post-1864 (Miller 2000:8) |
| 9 | 9 | 1 | 00-30 | Fill | 2 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, molded orange peel texture on exterior, soda-lime glass | |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Glass | Flat | Window | Colorless fragment | Claw hammer head fragment, claw broken off |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Glass | Flat | Window | Light aqua fragment | |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Ferrous Metal | Tool | Hammer | | |
| 9 | 9 | 1 | 00-30 | Fill | 4 | ARCH | Ferrous Metal | Nail | Wire | Whole, common | post-1879 (Wells 1998:92), 9 d. (2), 6 d. (1), 3 d. (1) |
| 9 | 9 | 1 | 00-30 | Fill | 6 | ARCH | Ferrous Metal | Nail | Wire | Whole, roofing, one has a tiny common wire nail wrapped around or corroded to its shaft | post-1879 (Wells 1998:92), 3 d. (3), 2 d. (4_ |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Ferrous Metal | Nail | Wire | Head fragment, roofing | post-1879 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 4 | ARCH | Ferrous Metal | Nail | Wire | Head fragments, common | post-1879 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 9 | ARCH | Ferrous Metal | Nail | Wire | Shaft/point fragments | post-1879 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 21 | ARCH | Ferrous Metal | Nail | Cut | Head fragments | post-1805 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 2 | ARCH | Ferrous Metal | Nail | Cut | Shaft/point fragments | post-1805 (Wells 1998:92) |
| 9 | 9 | 1 | 00-30 | Fill | 2 | ARCH | Ferrous Metal | Nail | Unidentified | Head fragments, heavily corroded | 3 1/4" long |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Ferrous Metal | Nail | Unidentified | Shaft/point fragment, heavily corroded | |
| 9 | 9 | 1 | 00-30 | Fill | 1 | ARCH | Ferrous Metal | Hardware | Bolt/screw | Appears to be whole, round head and shaft, flat end | |
| 9 | 9 | 1 | 00-30 | Fill | 1 | FUEL | Coal | | | Fragment | 2.2 grams |
| 10 | 9 | 2 | 30-58 | Ab | 1 | DOM | Glass | Vessel | Unidentified | Colorless base fragment, possible jar, soda-lime glass | post-1864 (Miller 2000:8) |
| 10 | 9 | 2 | 30-58 | Ab | 5 | DOM | Glass | Vessel | Unidentified | Coloress body fragments, one with molded orange peel texture on exterior, soda-lime glass | post-1864 (Miller 2000:8) |
| 10 | 9 | 2 | 30-58 | Ab | 5 | ARCH | Glass | Flat | Window | Aqua fragments, at least two panes | post-1879 (Wells 1998:92), 3 d., 4 1/4" long |
| 10 | 9 | 2 | 30-58 | Ab | 1 | ARCH | Ferrous Metal | Nail/Spike | Wire | Whole | |

| <u>CATALOG #</u> | <u>TEST #</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>ARTIFACT MATERIAL</u> | <u>ARTIFACT CLASS</u> | <u>ARTIFACT TYPE</u> | <u>DESCRIPTION</u> | <u>MEASUREMENTS/ COMMENTS/DATES</u> |
|------------------|---------------|--------------|---------------|----------------|--------------|--------------|--------------------------|-----------------------|----------------------|---|-------------------------------------|
| 10 | 9 | 2 | 30-58 | Ab | 1 | ARCH | Ferrous Metal | Nail | Wire | Whole, roofing | post-1879 (Wells 1998:92), 3 d. |
| 10 | 9 | 2 | 30-58 | Ab | 2 | ARCH | Ferrous Metal | Nail | Wire | Shaft fragments | post-1879 (Wells 1998:92) |
| 10 | 9 | 2 | 30-58 | Ab | 8 | ARCH | Ferrous Metal | Nail | Cut | Head fragments | post-1805 (Wells 1998:92) |
| 10 | 9 | 2 | 30-58 | Ab | 3 | ARCH | Ferrous Metal | Nail | Cut | Shaft/point fragments | post-1805 (Wells 1998:92) |
| 10 | 9 | 2 | 30-58 | Ab | 1 | FUEL | Coal Ash/Slag | | | Fragment (sample) | 4.3 grams |
| 10 | 9 | 2 | 30-58 | Ab | 1 | UNIID | Ferrous Metal | Unidentified | Unidentified | Elongated, shaft-like fragment, corroded, possible nail | |
| 10 | 9 | 2 | 30-58 | Ab | 1 | ARCH | Ferrous Metal | Hardware | Washer | Whole, round | 15/16" diameter |
| 11 | 10 | 2 | 15-25 | Fill 2 | 1 | DOM | Ceramic | Whiteware | Unidentified | Body sherd with medium blue transfer-printed wavy line decoration on interior | post-1820 (Miller 2000:13) |
| 11 | 10 | 2 | 15-25 | Fill 2 | 1 | DOM | Ceramic | Whiteware | Unidentified | Undecorated body spall | post-1820 (Miller 2000:13) |
| 11 | 10 | 2 | 15-25 | Fill 2 | 6 | ARCH | Glass | Flat | Window | Aqua fragments | |
| 11 | 10 | 2 | 15-25 | Fill 2 | 1 | ARCH | Ferrous Metal | Nail | Wire | Shaft fragment | post-1879 (Wells 1998:92) |
| 11 | 10 | 2 | 15-25 | Fill 2 | 2 | FUEL | Coal | | | Fragments (sample) | 8.6 grams |
| 11 | 10 | 2 | 15-25 | Fill 2 | 1 | FUEL | Coal Ash | | | Fragment (sample) | 5.0 grams |
| 12 | 11 | 1 | 0-15 | Fill 1 | 1 | DOM | Glass | Vessel | Bottle/Pitcher | Colorless finish fragment with handle and pouring lip, possible syrup bottle, mold seam to top of finish, leaded glass, stopper below | |
| 12 | 11 | 1 | 0-15 | Fill 1 | 1 | DOM | Glass | Vessel | Bottle | Colorless bottle stopper fragment, leaded glass, fitted to above bottle | |
| 12 | 11 | 1 | 0-15 | Fill 1 | 1 | DOM | Glass | Vessel | Tumbler | Colorless fluted body fragment, leaded glass | |
| 12 | 11 | 1 | 0-15 | Fill 1 | 4 | DOM | Glass | Vessel | Bottle | Colorless round base fragments, embossed "UP" within a keystone and "26" on base, leaded glass | ~ 1.75" diameter base |
| 12 | 11 | 1 | 0-15 | Fill 1 | 35 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, leaded glass | |
| 12 | 11 | 1 | 0-15 | Fill 1 | 2 | ARCH | Glass | Flat | Window | Light aqua fragments | |
| 12 | 11 | 1 | 0-15 | Fill 1 | 1 | FUEL | Coal | | | Fragment | 1.1 grams |
| 12 | 11 | 1 | 0-15 | Fill 1 | 1 | UNIID | Slag | | | Fragment, could be coal or glass slag | 1.4 grams |
| 13 | 11 | 3 | 27-44 | Fill 3 | 2 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, soda-lime glass | post-1864 (Miller 2000:8) |
| 14 | 20 | 1 | 00-38 | Fill 1 | 2 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, soda-lime glass | post-1864 (Miller 2000:8) |
| 14 | 20 | 1 | 00-38 | Fill 1 | 1 | UNIID | Glass | Unidentified | Unidentified | Amber fragment, melted, probable vessel glass | |
| 14 | 20 | 1 | 00-38 | Fill 1 | 1 | ARCH | Ferrous Metal | Nail | Wire | Nearly whole, roofing | post-1879 (Wells 1998:92) |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | DOM | Ceramic | Whiteware | Hollowware | Rim/edge sherd with molded decoration and green overglaze decal decoration on exterior, possible vase or lid for hollowware vessel | 1890+ (Miller 2000:13) |

| <u>CATALOG #</u> | <u>TEST #</u> | <u>LEVEL</u> | <u>DEPTH*</u> | <u>STRATUM</u> | <u>COUNT</u> | <u>GROUP</u> | <u>ARTIFACT MATERIAL</u> | <u>ARTIFACT CLASS</u> | <u>ARTIFACT TYPE</u> | <u>DESCRIPTION</u> | <u>MEASUREMENTS/ COMMENTS/DATES</u> |
|------------------|---------------|--------------|---------------|----------------|--------------|--------------|--------------------------|-----------------------|----------------------|--|-------------------------------------|
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | DOM | Ceramic | Unidentified | Unidentified | Slightly curved rim/edge fragment with brown glaze on interior and exterior, thick-bodied, burnt, probably stoneware or earthenware storage vessel | |
| 15 | 23 | 1 | 00-40 | Fill 1 | 2 | DOM | Glass | Vessel | Unidentified | Amber body fragments, possible beer bottle | |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | DOM | Glass | Vessel | Unidentified | Green body fragment with stippled exterior, possible beer bottle | probably 20th-century |
| 15 | 23 | 1 | 00-40 | Fill 1 | 7 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, soda-lime glass | post-1864 (Miller 2000:8) |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | ARCH | Glass | Flat | Window | Very light aqua fragment | |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | UNIID | Glass | Unidentified | Unidentified | Colorless fragment, melted, probable vessel glass | |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | UNIID | Glass | Unidentified | Unidentified | Forest green fragment, melted, probable vessel glass | |
| 15 | 23 | 1 | 00-40 | Fill 1 | 1 | FUEL | Coal | | | Fragment (sample) | 0.9 grams |
| 16 | 27 | 1 | 00-37 | Fill 1 | 2 | DOM | Glass | Vessel | Unidentified | Colorless body fragments, soda-lime glass | post-1864 (Miller 2000:8) |
| 16 | 27 | 1 | 00-37 | Fill 1 | 1 | UNIID | Ceramic | Porcelain | Unidentified | Molded, glazed fragment, thick possible bathroom fixture | |

Key:

* in centimeters below ground surface

ARCH - Architectural

ARMS - Armaments

BIO - Biological

DOM - Domestic

FUEL - Fuel-related

PERS - Personal

UNID - Unidentified

APPENDIX C: PROJECT DOCUMENTS

Appx C OPRHP comment 2-11-2013.txt

From: Weiss, Lorraine (PEB) [mailto:Lorraine.Weiss@parks.ny.gov]
Sent: Monday, February 11, 2013 11:47 AM
To: Mary Lynne Rainey
Cc: Howe, Kathy (PEB)
Subject: RE: Long Island Motor Parkway

Hello-

We have looked at the area and can see that this segment of the original Island Motor Parkway lacks integrity of setting, design, materials, craftsmanship, and feeling. We agree that no further above-ground investigation is warranted. However, if the project involves state or federal funding, it should be submitted to our office for review by our Archaeology Unit. You may already know this and may be familiar with our project review cover form. If not, the form can be accessed at <http://nysparks.com/shpo/environmental-review/>.

I hope this is helpful.

Regards,
Lorraine Weiss

Lorraine E. Weiss
Historic Preservation Planner
NYS Division for Historic Preservation
Lorraine.weiss@parks.ny.gov 518.237.8643, x3122

APPENDIX D: ANNOTATED BIBLIOGRAPHY

| | |
|---------------------|--|
| Authors: | Ilene Grossman-Bailey, Ph.D. |
| Title: | Phase IA/IB Cultural Resources Survey, Old Roosevelt Field Contaminated Groundwater Area Superfund Site, Option 2, Village of Garden City, Nassau County, New York |
| Date: | February 2013 |
| RGA Database Title: | Old Roosevelt Field |
| RGA Project No.: | 2013-002NY |
| State: | New York |
| County | Nassau |
| Municipality: | Village of Garden City |
| U.S.G.S. Quad: | Freeport, NY |
| Drainage Basin: | East Meadow Brook, Freeport Creek, Long Creek, Jones Inlet; Unnamed tributaries of Hempstead Reservoir, Hempstead Reservoir, East Rockaway Creek, the Long Beach Channel; Atlantic Ocean |
| Regulation: | Section 106, National Historic Preservation Act; 36 CFR Part 800 |
| Project Type: | Environmental Remediation |
| Project Sponsor: | United States Environmental Protection Agency |
| Client: | CDM Smith |
| Level of Survey: | Identification-level |
| Cultural Resources: | None |



New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

April 01, 2013

Thomas Mathew
CDM SMith
110 Fieldcrest Ave, #8, 6th Floor
Edison, New Jersey 08837

Re: EPA
Old Roosevelt Field
Contaminated Groundwater
Superfund Site, Stewart Ave
GARDEN CITY, Nassau County
13PR01414

Dear Mr. Mathew:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is the SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont
Deputy Commissioner for Historic Preservation

Appendix B

Recharge Basin Geotechnical Investigation Report



Technical Memorandum

To: Thomas Mathew, P.E.

*From: Kyle King
Kapila Pathirage, PhD, P.E.*

Date: November 10, 2008

*Subject: Infiltration Rate Analysis for Nassau County Recharge Basin #124,
Roosevelt Field, Garden City, New York*

Introduction

The Old Roosevelt Field Contaminated Groundwater Area Superfund Site, Environmental Protection Agency (EPA) Work Assignment No. 178-RDRD-02PE, is located in Garden City, Nassau County, New York. Nassau County Recharge Basin #124 is located to the east of Clinton Road. The basin has dimensions of approximately 508 feet by 428 feet, and a maximum depth of approximately 17 feet.

This technical memorandum summarizes the infiltration rate analysis and presents recommendations for infiltration rates for Nassau County Recharge Basin #124.

Purpose and Scope

The purpose of the infiltration rate analysis was to evaluate the infiltration rate at Nassau County Recharge Basin #124. The scope of work included the following:

- Review the field exploration program, infiltration program, and laboratory data to select design parameters for the infiltration rate analyses discussed in this memorandum.
- Evaluate the infiltration rate at basin using SEEP-W, version 7.12 (GeoStudio 2007).
- Prepare a technical memorandum presenting CDM's recommendations for infiltration rates for recharge basin #124.

Existing Site Conditions

The entire footprint of Nassau County Recharge Basin #124 is overgrown with grass. There are trees and shrubs along the perimeter of the basin and some trash on the surface was visible. The basin was accessed through a locked gate located at the southwest corner.

Field Explorations and Laboratory Testing

The field exploration was performed by SGS Environmental Services under the direct supervision of SOR Testing Laboratories, Inc., Cedar Grove, NJ. A CDM geotechnical specialist was also present during the field exploration program in the basin. The program was conducted on September 15th and 16th and included a subsurface investigation program and an infiltration measurement program. The subsurface investigation program consisted of four test borings and the infiltration measurement program included performing four Double Ring Infiltrometer tests. The approximate test boring and double ring infiltrometer testing locations are shown in Figure 1 (Attachment A).

Attachment B includes a report "Soil Investigation and Percolation Test Results" that was prepared by SOR Testing Laboratories Inc. to present the results of the field exploration program referenced above. This report includes boring logs, data from infiltrometer tests, laboratory test results and conclusions. The details of the field exploration program and results of laboratory testing are discussed below.

Subsurface Exploration Program

The subsurface exploration program consisted of four test borings drilled using truck mounted hollow stem auger drilling equipment and extended to approximately 37 feet below ground surface (bgs). Standard Penetration Testing (SPT, in accordance with ASTM D1586, using a 2-inch outside-diameter sampler driven 24 inches by blows from a 140-pound automatic hammer falling freely for 30-inches) was conducted at 5 foot intervals. Soil samples were obtained for laboratory testing for grain size and moisture content. The number of blows required to drive the sampler each 6-inch increment was recorded and the Standard Penetration Resistance (N-value) was determined as the sum of the blows over the middle 12 inches of penetration. Representative soil samples from each split spoon were collected by the driller and stored in jars for subsequent review and laboratory testing. The driller indicated that select soil samples were sent to SOR Testing Laboratories, Inc. for evaluation and laboratory testing.

Infiltration Measurement Program

The infiltration measurement program was conducted using Double Ring Infiltrometer (DRI) at four locations on the bottom of the basin. Infiltration tests were designated as DRI-1 through DRI-4. To facilitate the testing, tests pits were dug at the four locations and each DRI test was conducted in accordance to ASTM D3385 in the test pit at depths of approximately 8 to 12 inches bgs. Data from the infiltration tests are included in Attachment B.

Subsurface Soil Conditions

The subsurface conditions encountered at four test boring locations consisted of top soils approximately 8 to 12 inches overlying native soils consisting of sands. The term topsoil, as

used in this report, refers to surface soils that are friable in nature and have a trace of organic content (based on visual observation). Sands with trace of silt were encountered at boring locations to an approximate depth of 37 feet bgs. It was noted that this layer consisted of medium dense to very dense, yellow brown, coarse to fine SAND, little to trace silt. SPT N-values were typically in the range of 12 to 121 blows per foot at boring location. Boring logs are included in Attachment B.

Geotechnical Laboratory Testing

Laboratory tests were performed on select soil samples obtained from the soil borings. Twenty-eight grain size and moisture content analyses were performed and results of the geotechnical laboratory testing are included in Attachment B.

Infiltration Rate Analysis

The evaluation of infiltration rates at Nassau County Recharge Basin #124 occurred in two steps. Each step is described below.

- 1. Evaluate/Select Subsurface Strata, Permeability, and Groundwater Conditions.**
- 2. Perform SEEP-W Analyses.**

Evaluate/ Select Subsurface Strata, Permeability, and Groundwater Conditions

The subsurface strata modeled in the infiltrate rate analysis were developed based on information contained in the boring logs. Using the N-values recorded during the SPT testing, three representative layers were considered for modeling subsurface strata on SEEP-W.

The results of DRI testing discussed above indicate a permeability of 113 (1×10^{-3} feet per second [ft/sec]) to 360 centimeters per hours (cm/hr) (3.9×10^{-3} ft/sec) at the bottom of the basin. For the SEEP-W infiltration rate analysis, the conservative permeability value of 1×10^{-3} ft/sec was used for the first soil layer. The permeability for remaining layers was estimated using the results of gradation analyses and available correlations in technical literature (i.e., using grain size distribution curves and D_{10} values).

The estimated permeability using D_{10} ranged from 1×10^{-3} to 1×10^{-5} ft/sec and the permeability was assigned to the remaining two layers to encompass this permeability range. The layer thicknesses and permeability of layers used in this infiltration rate analysis are shown in Table 1.

Table 1: SEEP-W Subsurface Strata

| Layer # | Bottom Elevation (ft) | Thickness (ft) | Permeability (ft/sec) |
|---------|-----------------------|----------------|-----------------------|
| 1 | 66 | 11-17 | 1×10^{-3} |
| 2 | 57 | 9 | 1×10^{-4} |
| 3 | 0 | 57 | 1×10^{-5} |

During the field exploration conducted by SGS Environmental Services, the groundwater level varied from approximately 13 to 14 feet below the bottom of the basin.

Perform SEEP-W Analysis

The infiltration rate analyses for two cross sections (Sections A-A' and B-B') were performed using SEEP-W, version 7.12, software by GEO-SLOPE. The cross sections used in the analyses, depicted in Figure 1 in Attachment A, run through the center of Nassau County Recharge Basin #124 in the North-South, and East-West directions. The range of infiltration rates for the basin was estimated for three scenarios: if the water head in the Recharge Basin was equal to 1) zero feet, 2) one foot, or 3) three feet. Then the estimated infiltration rates were multiplied by the respective length of the bottom of the basin to provide an estimated total volume of water infiltrating into the basin. The estimated infiltration rates are shown in Table 2. The details of the infiltration rates are shown in Table 2A in Attachment C.

Table 2: Summary of Infiltration Rates for Nassau County Recharge Basin #124

| Section | Basin Water Head (ft) | Infiltration Rates of Basin (gal/min) |
|---------|-----------------------|---------------------------------------|
| A-A' | 0 | 1,864.13 |
| | 1 | 2,102.55 |
| | 3 | 2,480.26 |
| B-B' | 0 | 2,086.15 |
| | 1 | 2,399.49 |
| | 3 | 2,753.94 |

Recommendation for Infiltration Rates

Recommendations for infiltration rates for Nassau County Recharge Basin #124 are based on the results of field infiltration testing, laboratory testing, published technical literature, and results of the SEEP-W analysis. CDM recommends the following:

- a. The approximate infiltration rate at Nassau County Recharge Basin #124 is 1,850 gallons per minute (gpm) with no apparent head buildup in the Recharge Basin.
- b. The overgrown vegetation observed at the bottom of Nassau County Recharge Basin #124 should be maintained since the well maintained vegetation facilitates better infiltration at the base of the basin and also prevents erosion within the basin.

Conclusions

These evaluations and recommendations have been prepared to estimate the infiltration rate at Nassau County Recharge Basin #124, as understood at this time with the available data and described in this memorandum. These recommendations have been prepared in accordance with generally accepted engineering practices. No other warranty, express or implied, is made. In the event that changes in the design or location of the structures occur, the conclusions and recommendations contained herein should not be considered valid unless verified in writing by CDM.

Attachments:

Attachment A: Figures

Figure 1: Approximate Test Boring and Double Ring Infiltrometer Test Location Plan

Attachment B: Report Prepared by SOR Testing Laboratories, Inc., September 2008.

Attachment C: Tables

Table 2A: Detailed Infiltration Rates for Nassau County Recharge Basin #124

Attachment D: SEEP-W Results

ATTACHMENT A

FIGURES

ATTACHMENT B

REPORT PREPARED BY SOR TESTING LABORATORIES, INC.,
SEPTEMBER 2008

SOR TESTING LABORATORIES, INC.

Geotechnical Engineering - Materials Testing - Forensic Studies
98 Sand Park Rd., Cedar Grove, NJ 07009
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Branch Office:
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(732) 247-4481

Kamil Sor, Ph.D.
Orhun Sor, P.E.
Peter G. Mickus, P.E.
Yilmaz Arhan, Ph.D.
Kenneth Rowbotham, P.E.

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| | | | |
|----------|---|-------------|-----------|
| Client: | SGS Environmental Services | | |
| Project: | Roosevelt Field, Garden City, New York | | |
| Subject: | Soil Investigation and Percolation Test Results | | |
| Job No.: | 08-431 | Report No.: | 08-3025 |
| | | Date: | 9/29/2008 |

This report presents the results of a soils investigation performed for proposed recharge basin to be constructed at a site east of Clinton Road behind the Roosevelt Field Mall in Garden City, New York.

A subsurface exploration program consisting of four test borings was conducted at the site on September 15 and 16, 2008. The borings were advanced using ^{ATG} truck-mounted hollow stem auger drilling equipment and extended to depths of 37 feet beneath the ground surface. Soil samples suitable for identification and laboratory testing purposes were extracted from the borings in accordance with the procedures of the Standard Penetration Test. Four infiltration tests using the double ring infiltrometer method were also performed in accordance with ASTM D3385 at the proposed design subgrade elevation. Upon completion, the explorations were grouted with a cement-bentonite mixture.

The explorations were performed by SGS Environmental Services under the direct technical observation of a geotechnical engineer from Sor Testing Laboratories, Inc. Our representative prepared logs of the explorations as the drilling proceeded, conducted the double ring infiltration tests, and supervised the soil sampling operations so as to obtain the appropriate subsurface information. The locations of the explorations were provided by the client. Detailed descriptions of the encountered subsurface conditions are presented on the individual boring logs included in Appendix I. The soils were visually classified in accordance with the NYC Building Code and Burmeister Soil Classification System which is also included in Appendix I.

All soil samples were brought to our soils mechanics laboratory where they were examined and subjected to appropriate laboratory tests. Moisture content, mechanical gradation analyses as well as hydrometer analyses were performed on all samples as required. The field infiltrometer and laboratory test results are included in Appendix II.

SUBSURFACE CONDITIONS

The subsurface conditions encountered in the borings performed for this study were relatively uniform and consisted of approximately 8 to 12 inches of topsoil/vegetation underlain by yellowish brown to tan gravelly coarse to fine sand with minor amounts of silt. The gravelly sand extended to the maximum depths explored, 37 feet. Groundwater, as evidenced by wet soils and direct measurement, was encountered in the borings at depths ranging from approximately 13 to 14 feet beneath the ground surface. Groundwater levels can be expected to vary from those observed at the time of our study due to seasonal variations in precipitation, temperature and/or other factors.

CONCLUSIONS

The subsoils at the proposed recharge basin locations consist of medium compact gravelly sands with minor amounts of silt. The infiltration tests indicated that the natural soils at and below the anticipated system subgrade level have permeabilities that range from approximately 113 cm/hr to 360 cm/hr.

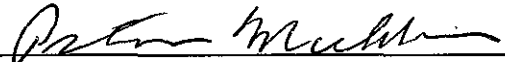
It is our opinion that the site is suitable for a subsurface recharge basin designed in accordance with the measured field soil permeability rates. The system will disperse stormwater over a relatively large infiltrative surface and limit concentrated recharge.

We appreciate the opportunity to be of assistance on this project. Please do not hesitate to contact us if there are any questions concerning the information contained in this report. The following appendices are attached and complete this report:

- Appendix I- Boring Logs 1 through 4
Burmeister Soil Classification System
- Appendix II- Infiltration Test Results 1 through 4
Laboratory Test Results

Respectfully submitted,

SOR TESTING LABORATORIES, INC.



Peter G. Micklus, P.E.
Vice President

PGM/lis

cc: (1) Client, Attn: Dermot Dillon

APPENDIX I

BORING LOGS 1 THROUGH 4

BURMEISTER SOIL CLASSIFICATION SYSTEM

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|------|------|--------------------------|-----------------------|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-1 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-16-2008 | |
| GROUND WATER | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-16-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. 08-431 |
| | | | | WT. | - | 140# | | | REPORT NO. 08-3025 |
| | | | | FALL | 0 | 30" | | | Page 1 of 2 |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 1 | | | | | | 8" Topsoil | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | S-1 | 5'-7' | 5 | 12 | Tan to Yellowish brown coarse to fine SAND, trace Silt, | |
| 7 | | | | 6 | | and medium to fine Gravel (6-65) $\Delta 10 \quad 0.35$ | |
| 8 | | | | 6 | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | S-2 | 10'-12' | 6 | 16 | Red Yellow coarse to fine SAND, trace Silt, little | |
| 12 | | | | 7 | | medium to fine Gravel (6-65) | |
| 13 | | | | 9 | | | |
| 14 | | | | 12 | | | |
| 15 | | | | | | | |
| 16 | | S-3 | 15'-17' | 5 | 42 | Same | |
| 17 | | | | 9 | | | |
| 18 | | | | 33 | | | |
| 19 | | | | 15/1" | | | |
| 20 | | | | | | | |
| 21 | | S-4 | 20'-22' | 7 | 27 | Yellowish brown coarse to fine SAND, trace Silt, little | |
| 22 | | | | 11 | | medium to fine Gravel (6-65) | |
| 23 | | | | 16 | | | |
| 24 | | | | 18 | | | |
| 25 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|-------|------|--------------------------|--------------------------|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-1 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-16-2008 | |
| GROUND WATER | | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-16-2008 |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. 08-431 |
| | | | | WT. | - | 140# | | | REPORT NO. 08-3025 |
| | | | | FALL | 0 | 30" | | | Page 2 of 2 |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 26 | | S-5 | 25'-27' | 6 | 22 | Yellowish brown coarse to fine SAND, trace Silt, trace fine Gravel (7-65) | |
| | | | | 11 | | | |
| 27 | | | | 11 | | | |
| | | | | 13 | | | |
| 28 | | S-6 | 30'-32' | | 18 | Same | |
| 29 | | | | | | | |
| 30 | | | | | | | |
| 31 | | | | 4 | | | |
| | | | | 9 | | | |
| 32 | | | | 9 | | | |
| | | | | 12 | | | |
| 33 | | | | | | | |
| 34 | | S-7 | 35'-37' | | 18 | Yellowish brown coarse to fine SAND, trace Silt, and medium to fine Gravel w/Silt lenses (6-65) | |
| 35 | | | | | | | |
| 36 | | | | 8 | | | |
| | | | | 9 | | | |
| 37 | | | | 9 | | | |
| | | | | 6 | | | |
| 38 | | | | | | Test Boring completed @ 37'-0" | |
| 39 | | | | | | | |
| 40 | | | | | | | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |

S - SPLIT SPOON SAMPLER

U - UNDISTURBED SAMPLE

C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services

DRILLING EQUIPMENT: Truck Rig CME 1050

STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | | |
|---|------|-------|--------|------|------------------------|-------|------|------|---------------------------|---------|
| SOR TESTING LABORATORIES, INC. | | | | | TEST BORING LOG | | | | BORING # RB-2 | |
| CLIENT SGS Environmental Services | | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | | DATE START 9-15-2008 | |
| GROUND WATER | | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-16-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. | 08-431 |
| | | | | WT. | - | 140# | | | REPORT NO. | 08-3025 |
| | | | | FALL | 0 | 30" | | | Page 1 of 2 | |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 1 | | | | | | 8" Topsoil | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | S-1 | 5'-7' | 8 | 22 | Yellowish brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 7 | | | | 11 | | | |
| 8 | | | | 11 | | | |
| 9 | | | | 13 | | | |
| 10 | | | | | | | |
| 11 | | S-2 | 10'-12' | 5 | 21 | Brownish Yellow medium to fine GRAVEL, and coarse to fine Sand, trace Silt (6-65) | |
| 12 | | | | 8 | | | |
| 13 | | | | 13 | | | |
| 14 | | | | 11 | | | |
| 15 | | | | | | | |
| 16 | | S-3 | 15'-17' | 5 | 16 | Light Yellow brown coarse to fine SAND, trace Silt, little medium to fine Gravel (6-65) | |
| 17 | | | | 5 | | | |
| 18 | | | | 9 | | | |
| 19 | | | | 20 | | | |
| 20 | | | | | | | |
| 21 | | S-4 | 20'-22' | 6 | 20 | Same | |
| 22 | | | | 8 | | | |
| 23 | | | | 12 | | | |
| 24 | | | | 25/3" | | | |
| 25 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|-------|------|--------------------------|--------------------------|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-2 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-15-2008 | |
| GROUND WATER | | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-16-2008 |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. 08-431 |
| | | | | WT. | - | 140# | | | REPORT NO. 08-3025 |
| | | | | FALL | 0 | 30" | | | Page 2 of 2 |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 26 | | S-5 | 25'-27' | 6 | 18 | Yellowish brown coarse to fine SAND, trace Silt, trace fine Gravel (7-65) | |
| | | | | 8 | | | |
| 27 | | | | 10 | | | |
| | | | | 10 | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |
| | | | | | | | |
| 31 | | S-6 | 30'-32' | 3 | 15 | Yellowish brown coarse to fine SAND, trace Silt, trace fine Gravel (7-65) | |
| | | | | 6 | | | |
| 32 | | | | 9 | | | |
| | | | | 9 | | | |
| 33 | | | | | | | |
| 34 | | | | | | | |
| 35 | | | | | | | |
| | | | | | | | |
| 36 | | S-7 | 35'-37' | 5 | 16 | Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| | | | | 7 | | | |
| 37 | | | | 9 | | | |
| | | | | 9 | | | |
| 38 | | | | | | Test Boring completed @ 37'-0" | |
| 39 | | | | | | | |
| 40 | | | | | | | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|-------|------|--------------------------|-----------------------|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-3 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-16-2008 | |
| GROUND WATER | | | | | | | | DATE FINISH 9-16-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | CAS. | SAMP. | CORE | TUBE | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. 08-431 |
| | | | | WT. | - | 140# | | | REPORT NO. 08-3025 |
| | | | | FALL | 0 | 30" | | | Page 1 of 2 |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 1 | | | | | | 12" Topsoil | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | S-1 | 5'-7' | 5 | 29 | Tan coarse to fine SAND, trace Silt, and medium to fine Gravel (6-65) | |
| 7 | | | | 9 | | | |
| 8 | | | | 20 | | | |
| 9 | | | | 23 | | | |
| 10 | | | | | | | |
| 11 | | S-2 | 10'-12' | 6 | 35 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 12 | | | | 15 | | | |
| 13 | | | | 20 | | | |
| 14 | | | | 22 | | | |
| 15 | | | | | | | |
| 16 | | S-3 | 15'-17' | 8 | 33 | Yellow brown coarse to fine SAND, trace Silt, little medium to fine Gravel (6-65) | |
| 17 | | | | 15 | | | |
| 18 | | | | 18 | | | |
| 19 | | | | 15/1" | | | |
| 20 | | | | | | | |
| 21 | | S-4 | 20'-22' | 8 | 22 | Tan coarse to fine SAND, trace Silt, trace fine Gravel (7-65) | |
| 22 | | | | 9 | | | |
| 23 | | | | 13 | | | |
| 24 | | | | 18 | | | |
| 25 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | | |
|---|------|-------|--------|------|------------------------|-------|------|------|--------------------------|--|
| SOR TESTING LABORATORIES, INC. | | | | | TEST BORING LOG | | | | BORING # RB-3 | |
| CLIENT SGS Environmental Services | | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | | DATE START 9-16-2008 | |
| GROUND WATER | | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-16-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | | |
| 9-16-2008 | | 13' | | DIA. | 4 1/4" | 2" | | | JOB NO. 08-431 | |
| | | | | WT. | - | 140# | | | REPORT NO. 08-3025 | |
| | | | | FALL | 0 | 30" | | | Page 2 of 2 | |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|------------|--------------|-----------------|---------|----------------------|---------|--|---------|
| 26 | | S-5 | 25'-27' | 6 | 28 | Yellowish brown coarse to fine SAND, trace Silt, little medium to fine Gravel (6-65) | |
| | | | | 14 | | | |
| 27 | | | | 14 | | | |
| | | | | 16 | | | |
| 28 | | S-6 | 30'-32' | | 16 | Same | |
| 29 | | | | | | | |
| 30 | | | | | | | |
| | | | | 6 | | | |
| 31 | | S-7 | 35'-37' | 8 | 15 | Brown Yellow/Pale Yellow coarse to fine SAND, some Silt, w/CLAY layers (6-65) | |
| | | | | 8 | | | |
| 32 | | | | 13 | | | |
| 33 | | | | | | | |
| 34 | | | | | | Test Boring completed @ 37'-0" | |
| 35 | | | | | | | |
| 36 | | | | 3 | | | |
| | | | | 6 | | | |
| 37 | | | | 9 | | | |
| | | | | 13 | | | |
| 38 | | | | | | | |
| 39 | | | | | | | |
| 40 | | | | | | | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|------|------|--------------------------|--|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-4 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-15-2008 | |
| GROUND WATER | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-15-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | |
| 9-15-2008 | | 14' | | DIA. | 4 1/4" | 2" | | JOB NO. 08-431 | |
| | | | | WT. | - | 140# | | REPORT NO. 08-3025 | |
| | | | | FALL | 0 | 30" | | Page 1 of 2 | |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|---------|-------------------------|---------|---|---------|
| 1 | | | | | | 8" Topsoil | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | S-1 | 5'-7' | 7 12 12 13 | 24 | Tan coarse to fine SAND, trace Silt, some medium to fine Gravel(6-65) | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | S-2 | 10'-12' | 5 13 22 23 | 35 | Tan to White coarse to fine Sand, trace Silt, and medium to fine Gravel (6-65) | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | S-3 | 15'-17' | 3 11 13 20 | 24 | Tan to Yellowish brown coarse to fine SAND, trace Silt, little medium to fine Gravel (Wet) (6-65) | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | S-4 | 20'-22' | 6 21 100/6" | 121 | Brownish Yellow coarse to fine SAND, trace Silt, trace medium to fine Gravel (7-65) | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | | | |
| 25 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

| | | | | | | | | | |
|---|------|-------|--------|------------------------|--------|------|------|--------------------------|--|
| SOR TESTING LABORATORIES, INC. | | | | TEST BORING LOG | | | | BORING # RB-4 | |
| CLIENT SGS Environmental Services | | | | | | | | GSE | |
| PROJECT Roosevelt Field | | | | | | | | DATUM | |
| LOCATION Garden City, New York | | | | | | | | DATE START 9-15-2008 | |
| GROUND WATER | | | | CAS. | SAMP. | CORE | TUBE | DATE FINISH 9-15-2008 | |
| DATE | TIME | DEPTH | CASING | TYPE | HSA | SS | | | |
| 9-15-2008 | | 14' | | DIA. | 4 1/4" | 2" | | JOB NO. 08-431 | |
| | | | | WT. | - | 140# | | REPORT NO. 08-3025 | |
| | | | | FALL | 0 | 30" | | Page 2 of 2 | |

| depth, ft. | casing blows | sample type/no. | Depth | sampler blows per 6" | N value | DESCRIPTION | REMARKS |
|---------------|-----------------|--------------------|-----------|-------------------------|---------|---|---------|
| 26 | | S-5 | 25'-27' | 5 | 24 | Yellowish brown coarse to fine SAND, trace Silt, trace medium to fine Gravel (Wet) (7-65) | |
| | | | | 9 | | | |
| 27 | | | | 15 | | | |
| | | | | 50 | | | |
| 28 | | S-6 | 30'-31.3' | | 68/9" | Same | |
| 29 | | | | | | | |
| 30 | | | | | | | |
| | | | | 8 | | | |
| 31 | | S-7 | 35'-37' | 18 | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| | | | | 50/3" | | | |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | S-7 | 35'-37' | | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 35 | | | | | | | |
| 36 | | | | 6 | | | |
| | | | | 10 | | | |
| 37 | | S-7 | 35'-37' | 15 | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| | | | | 14 | | | |
| 38 | | | | | | | |
| 39 | | | | | | | |
| 40 | | S-7 | 35'-37' | | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | S-7 | 35'-37' | | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | S-7 | 35'-37' | | 25 | Light Yellow brown coarse to fine SAND, trace Silt, some medium to fine Gravel (6-65) | |
| 49 | | | | | | | |
| | | | | | | | |
| 50 | | | | | | | |

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: SGS Environmental Services
DRILLING EQUIPMENT: Truck Rig CME 1050
STL REPRESENTATIVE: A. Sencar

VISUAL IDENTIFICATION OF SAMPLES

The samples were identified in accordance with the American Society for Engineering Education System of Definition described by Professor Donald M. Burmister in ASTM Special Technical Publication 479, 5th Edition, 1970.

I. Definition of Soil Components and Fractions

| MATERIAL | SYMBOL | FRACTION | SIEVE SIZE | DEFINITION |
|----------|--------|--------------------------------------|--|--|
| Boulders | Bldr | -- | 9" + | Material retained on 9" sieve. |
| Cobbles | Cbl | -- | 3" to 9" | Material passing the 9" sieve and retained on the 3" sieve. |
| Gravel | G | Coarse (c) Medium (m) Fine (f) | 1" to 3" 3/8" to 1" No. 10 to 3/8" | Material passing the 3" sieve and retained on the No. 10 sieve. |
| Sand | S | Coarse (c) Medium (m) Fine (f) | No.30 to No. 10 No.60 to No. 30 No.200 to No. 60 | Material passing the No. 10 sieve and retained on the No. 200 sieve. |
| Silt | \$ | -- | Passing No. 200 (0.074 mm) | Material passing the No. 200 sieve that is non-plastic in character and exhibits little or no strength when air dried. |

Organic Silt (O\$)

Material passing the No. 200 sieve which exhibits plastic properties within a certain range of moisture content, and exhibits fine granular and organic characteristics.

| | | PLASTICITY | PLASTICITY INDEX | CLAY-SOIL |
|-------------|------|----------------|------------------|--|
| Clayey SILT | Cy\$ | Slight (sl) | 1 to 5 | Material passing the No. 200 sieve which can be made to exhibit plasticity and clay qualities within a certain range of moisture content, and which exhibits considerable strength when air-dried. |
| SILT & CLAY | \$&C | Low (l) | 5 to 10 | |
| CLAY & SILT | C&\$ | Medium (m) | 10 to 20 | |
| Silty CLAY | \$yC | High (h) | 20 t 40 | |
| CLAY | C | Very High (vh) | 40 plus | |

II. Definition of Component Proportions

| COMPONENT | WRITTEN | PROPORTIONS | SYMBOL | PERCENTAGE RANGE BY WEIGHT* |
|-----------|------------|-----------------------|--------|-----------------------------|
| Principal | CAPITALS | -- | | 50 or more |
| Minor | Lower Case | and some little trace | a. | 35 to 50 |
| | | | s. | 20 to 35 |
| | | | l. | 10 to 20 |
| | | | t. | 1 to 10 |

*Minus sign (-) lower limit, plus sign (+) upper limit, no sign middle range.

III. Glossary of Modifying Abbreviations

| CATEGORY | SYMBOL | TERM | SYMBOL | TERM | SYMBOL | TERM |
|----------------------------|--|--|--|---|-----------------------------------|---|
| A. Borings | U/D | Undisturbed | B | Exploratory | A | Auger |
| B. Samples | C D O.E. | Casing Denison Open End | L S | Lost Spoon | U W | Undisturbed Wash |
| C. Colors | bk bl br gr | black blue brown gray | gn or rd tn | green orange red tan | wh yw dk lt | white yellow dark light |
| D. Organic Soils | dec dec'g lig | decayed decaying lignite | o rts ts | organic roots topsoil | veg pt | Vegetation peat |
| E. Rocks | LS Gns | Limestone Gneiss | rk SS | rock Sandstone | Shst Sh | Schist Shale |
| F. Fill and Misc. Material | bldr(s) brk(s) cndr(s) | boulder(s) brick(s) cinder(s) | cbl (s) wd dbr | cobble (s) wood debris | gls misc rbl | glass miscellaneous rubble |
| G. Misc. Terms | do el, El fgmt (s) frgt lrg mtld no rec pen | ditto elevation fragment(s) frequent large mottled no recovery penetration | pp P.I. P pc(s) rec or R | pocket penetrometer Plasticity Index pushed pressed piece(s) recovered | ref sm W.L. W.H. W.R. | refusal small water level weight of hammer weight of rods |
| H. Stratified Soils | alt thk thn w prt seam lyr stra vvd c pkt Ins occ freq | alternating thick thin with parting seam layer stratum varved Clay pocket lens occasional frequent | -) to 1/16" thickness - 1/16 to 1/2" thickness - 1/2 to 12" thickness - greater than 12" thickness - alternating seams or layers of sand, silt and clay - small, erratic deposit, usually less than 1 foot - lenticular deposit - one or less per foot of thickness - more than one per foot of thickness | | | |

APPENDIX II

INFILTRATION TEST RESULTS 1 THROUGH 4

LABORATORY TEST RESULTS

SOR CONSULTING ENGINEERS, INC.

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DATA FORM FOR INFILTRATION TEST

CLIENT - SGS ENVIRONMENTAL SERVICES

PROJECT - ROOSEVELT FIELD

TEST LOCATION - RECHARGE BASIN - DRI-1

DEPTH OF TEST - 8" Below Surface

| CONSTANTS | AREA (cm ²) | RING PENETRATION (cm) | WATER DEPTH (cm) |
|---------------|-------------------------|-----------------------|------------------|
| INNER RING | 730 | 10.2 | 10.2 |
| OUTER RING | 2919 | 15.2 | - |
| ANNULAR SPACE | 2189 | - | 10.2 |

| NO. | DATE | TIME | ELAPSED | CUMULIT. | INNER RING | ANNULAR | INNER RING | ANNULAR |
|-----|------|-------|---------|----------|-----------------|-----------------|------------|------------|
| | | | TIME | TIME | FLOW | SPACE FLOW | INFILTRATE | INFILTRATE |
| | 2008 | | (min) | (min) | cm ³ | cm ³ | cm/hr | cm/hr |
| | 9/16 | 10:00 | | | | | | |
| 1 | | 10:11 | 11 | 11 | 18,950 | 50,850 | 141.6 | 141.7 |
| 2 | | 10:24 | 13 | 24 | 37,900 | 113,700 | 129.8 | 129.9 |
| 3 | | 10:38 | 14 | 38 | 56,850 | 170,550 | 123.0 | 123.0 |
| 4 | | 10:52 | 14 | 52 | 75,800 | 227,400 | 119.8 | 119.9 |
| 5 | | 11:06 | 14 | 66 | 94,750 | 284,250 | 118.0 | 118.0 |
| 6 | | 11:21 | 15 | 81 | 113,700 | 346,100 | 115.4 | 115.4 |
| 7 | | 11:36 | 15 | 96 | 132,650 | 397,950 | 113.6 | 113.6 |

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DATA FORM FOR INFILTRATION TEST

CLIENT - SGS ENVIRONMENTAL SERVICES

PROJECT - ROOSEVELT FIELD

TEST LOCATION - RECHARGE BASIN DRI-2

DEPTH OF TEST - 8" Below Surface

CONSTANTS

AREA (cm²)

RING PENETRATION (cm)

WATER DEPTH (cm)

INNER RING

730

10.2

10.2

OUTER RING

2919

15.2

-

ANNULAR SPACE

2189

-

10.2

ELAPSED

CUMULATIVE

INNER RING

ANNULAR

INNER RING

ANNULAR SPACE

NO.

DATE

TIME

TIME

TIME

FLOW

SPACE FLOW

INFILTRATE RATE

INFILTRATE RATE

2008

(min)

(min)

cm³

cm³

cm/hr

cm/hr

9/15 2:56

| | | | | | | | | |
|---|---|------|----|----|---------|---------|-------|-------|
| 1 | " | 3:03 | 7 | 7 | 18,950 | 75,800 | 222.4 | 296.8 |
| 2 | " | 3:13 | 10 | 17 | 37,900 | 151,600 | 183.3 | 244.4 |
| 3 | " | 3:20 | 7 | 24 | 56,850 | 208,450 | 194.7 | 238.1 |
| 4 | " | 3:27 | 7 | 31 | 75,800 | 265,300 | 200.9 | 234.6 |
| 5 | " | 3:35 | 8 | 39 | 94,750 | 322,150 | 199.7 | 226.4 |
| 6 | " | 3:43 | 8 | 47 | 113,700 | 379,000 | 198.8 | 221.0 |

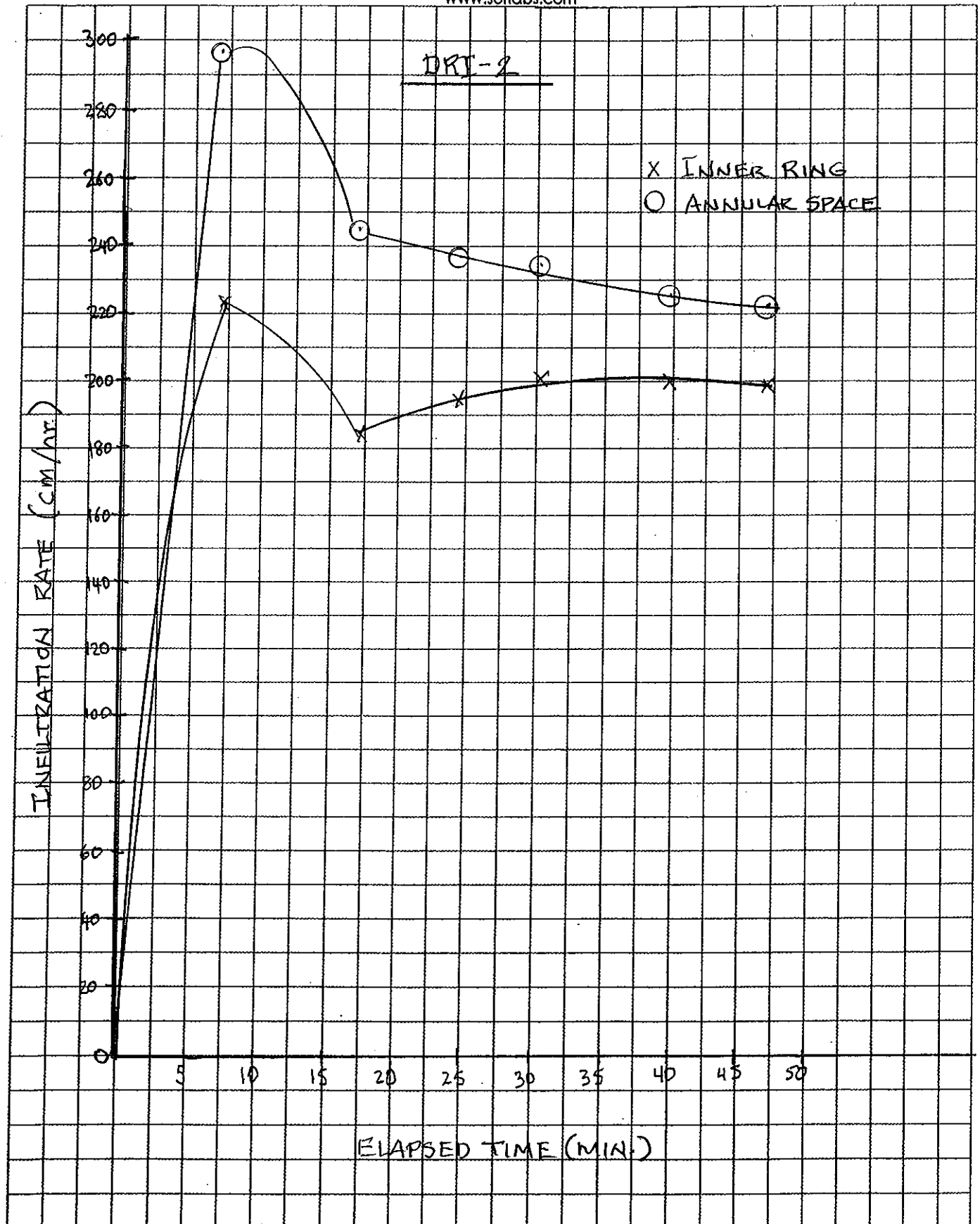
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DATA FORM FOR INFILTRATION TEST

CLIENT - SGS ENVIRONMENTAL SERVICES

PROJECT - ROOSEVELT FIELD

TEST LOCATION - RECHARGE BASIN - DRT-3

DEPTH OF TEST - 12" Below Surface

| CONSTANTS | AREA (cm ²) | RING PENETRATION (cm) | WATER DEPTH (cm) |
|---------------|-------------------------|-----------------------|------------------|
| INNER RING | 730 | 10.2 | 10.2 |
| OUTER RING | 2919 | 15.2 | - |
| ANNULAR SPACE | 2189 | - | 10.2 |

| NO. | DATE | TIME | ELAPSED | CUMULIT. | INNER RING | ANNULAR | INNER RING | ANNULAR SPACE |
|-----|------|------|---------|----------|-----------------|-----------------|------------|---------------|
| | | | TIME | TIME | FLOW | SPACE FLOW | INFILTRATE | INFILTRATE |
| | 2008 | | (min) | (min) | cm ³ | cm ³ | cm/hr | cm/hr |
| | 9/16 | 3:17 | | | | | | |
| 1 | | 3:22 | 5 | 5 | 18,950 | 56,850 | 311.7 | 311.7 |
| 2 | | 3:25 | 3 | 8 | 37,900 | 113,700 | 389.5 | 389.5 |
| 3 | | 3:30 | 5 | 13 | 56,850 | 170,550 | 359.4 | 359.4 |
| 4 | | 3:34 | 4 | 17 | 75,800 | 227,400 | 366.5 | 366.5 |
| 5 | | 3:38 | 4 | 21 | 94,750 | 284,250 | 370.8 | 370.8 |
| 6 | | 3:43 | 5 | 26 | 113,700 | 341,100 | 359.5 | 359.5 |
| 7 | | 3:47 | 4 | 30 | 132,650 | 397,950 | 363.4 | 363.4 |

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DATA FORM FOR INFILTRATION TEST

CLIENT - SGS ENVIRONMENTAL SERVICES

PROJECT - ROOSEVELT FIELD

TEST LOCATION - RECHARGE BASIN - DRI-4

DEPTH OF TEST - 8" Below Surface

CONSTANTS

AREA (cm²)

RING PENETRATION (cm)

WATER DEPTH (cm)

INNER RING

730

10.2

10.2

OUTER RING

2919

15.2

-

ANNULAR SPACE

2189

-

10.2

| NO. | DATE | TIME | ELAPSED | CUMULIT. | INNER RING | ANNULAR | INNER RING | ANNUL. SPACE |
|-----|------|------|---------|----------|-----------------|-----------------|------------|--------------|
| | | | TIME | TIME | FLOW | SPACE FLOW | INFILTRATE | INFILTRATE |
| | 2008 | | (min) | (min) | cm ³ | cm ³ | cm/hr | cm/hr |

9/15 10:52

| | | | | | | | | |
|---|---|-------|----|----|---------|---------|-------|-------|
| 1 | " | 11:04 | 12 | 12 | 34,110 | 56,850 | 233.6 | 129.8 |
| 2 | " | 11:15 | 11 | 23 | 72,010 | 170,550 | 257.4 | 203.3 |
| 3 | " | 11:28 | 13 | 36 | 109,910 | 303,200 | 250.9 | 230.9 |
| 4 | " | 11:34 | 6 | 42 | 128,840 | 360,050 | 252.2 | 235.0 |
| 5 | " | 11:41 | 7 | 49 | 147,810 | 435,850 | 247.9 | 243.8 |

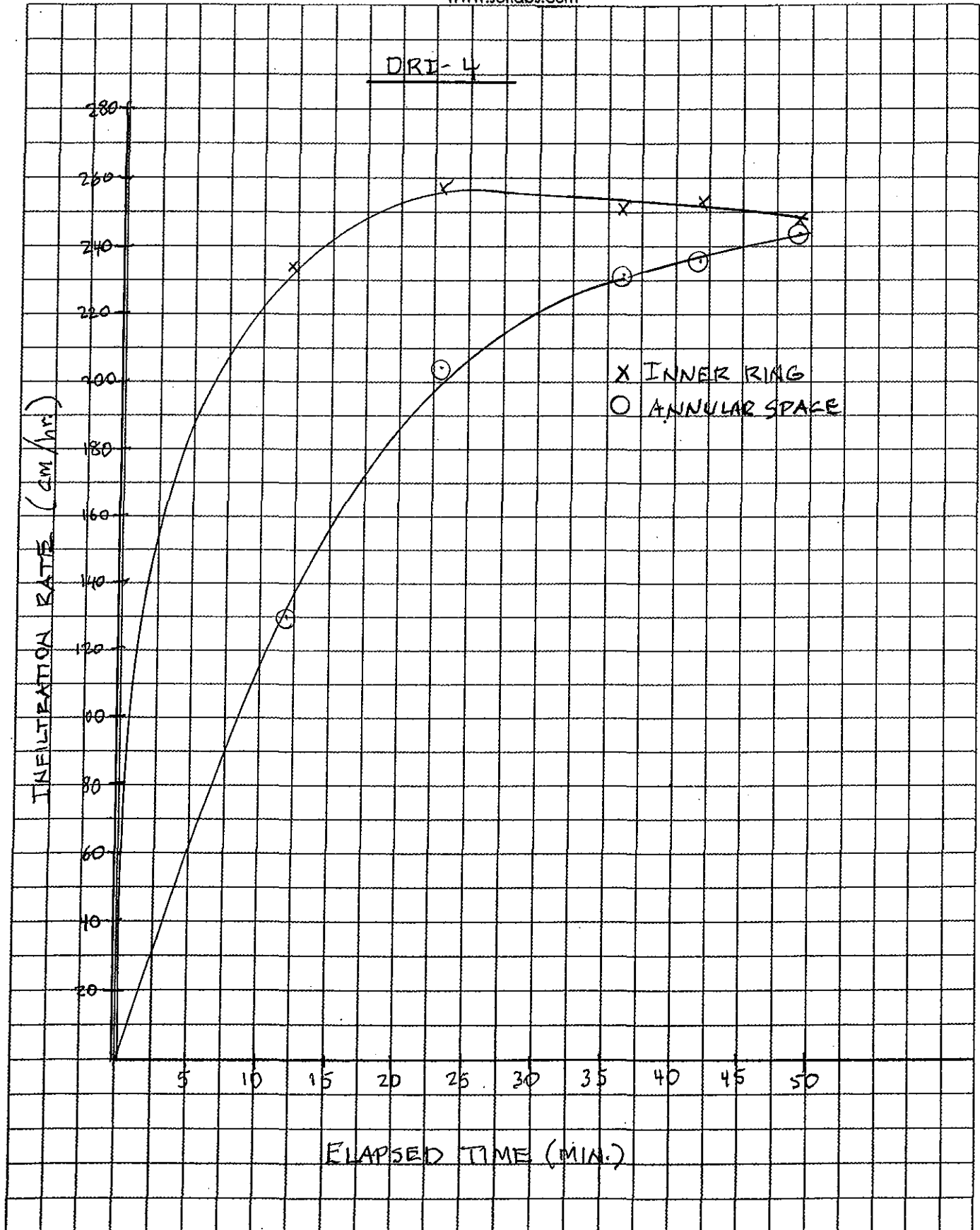
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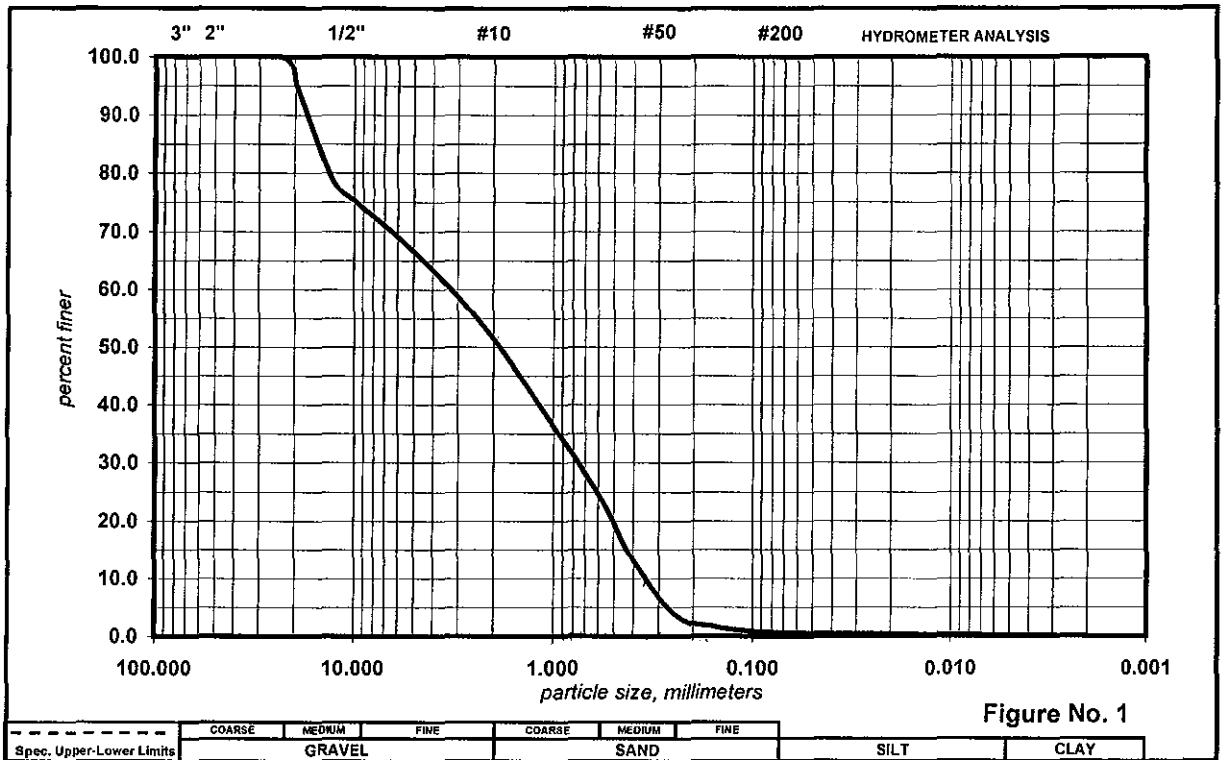
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PARTICLE SIZE DISTRIBUTION TEST REPORT

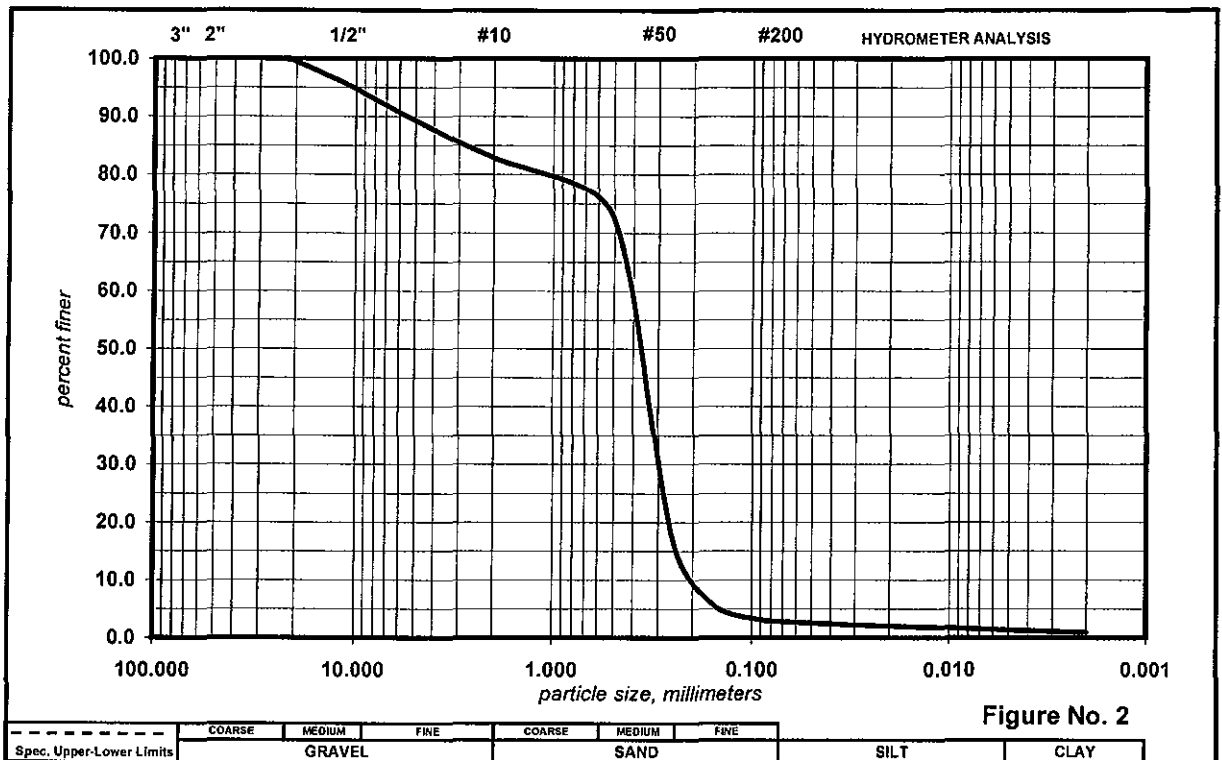


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|---|---------------------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-1, S-1 | |
| 4" | | | | Lab No.: | A08-324-01 | |
| 2 1/2" | | | | Source/Location: | 5'-7' | |
| 2" | | | | Description: | Yel. Brown of SAND, trace Silt, and mf Gravel | |
| 1 1/2" | | | | | | |
| 1" | 100.0 | | | sample description in accordance with Burnister System | | |
| 3/4" | 94.2 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 3.4 % | | |
| 1/2" | 78.7 | | | Classification: | | |
| 3/8" | 74.8 | | | USCS: [SW] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 65.9 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 51.4 | | | | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 24.2 | | | | | |
| #40 | 14.2 | | | | | |
| #50 | | | | Client: | SGS Environmental Services | |
| #60 | 3.9 | | | Project: | Roosevelt Field | |
| #100 | 1.5 | | | Location: | Garden City, New York | |
| #200 | 0.7 | | | Date: | 26-Sep-08 | |
| | | | | Job No.: | 08-431 | Report No.: 08-3025 |

SOR TESTING LABORATORIES, INC.

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PARTICLE SIZE DISTRIBUTION TEST REPORT

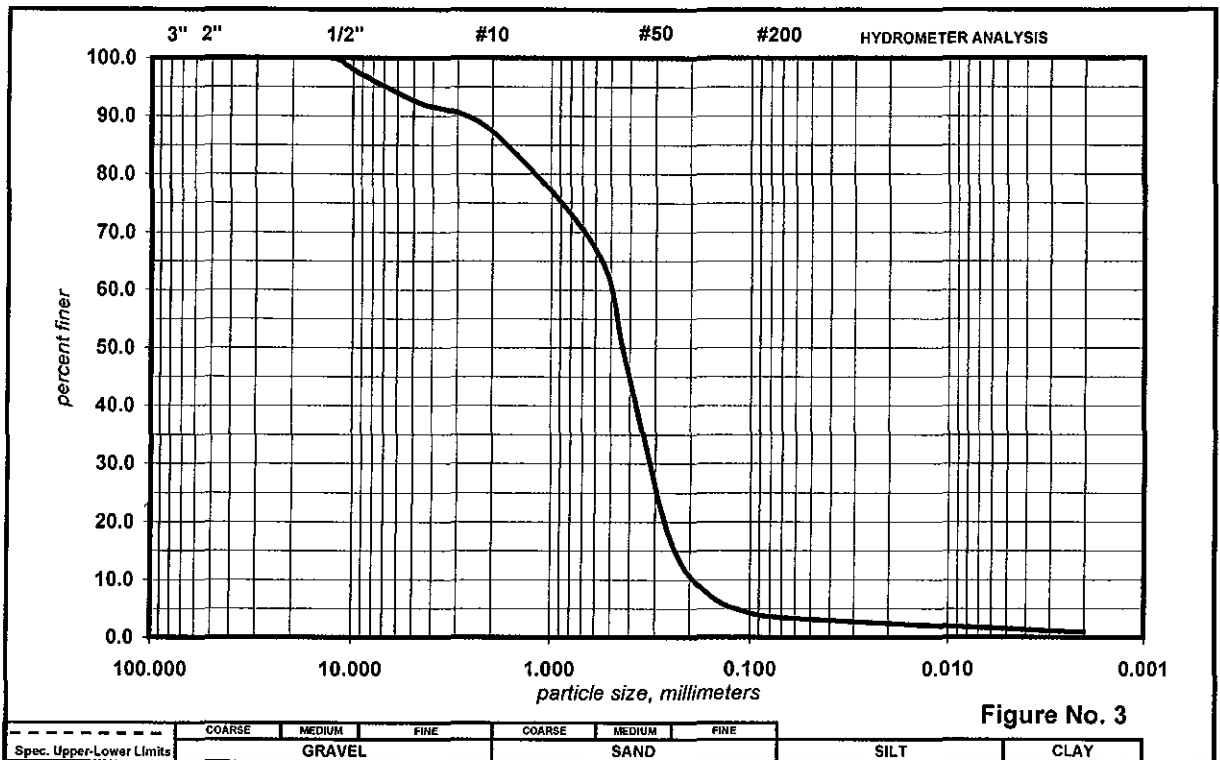


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-1, S-2 Lab No.: A08-324-02 Source/Location: 10'-12' Description: Red. Yellow cf SAND, trace Silt, little mf Gravel <i>sample description in accordance with Burmister System</i> LL : PL : PI : As Received Moisture Content: 16.5 % Classification: USCS: [SP] AASHTO: Remarks: Sample received in lab on September 17, 2008 | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | 100.0 | | | | | |
| 3/4" | 99.1 | | | | | |
| 5/8" | | | | | | |
| 1/2" | 96.5 | | | | | |
| 3/8" | 94.4 | | | | | |
| 5/16" | | | | | | |
| 1/4" | | | | | | |
| #4 | 88.9 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 82.9 | | | | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 76.0 | | | | | |
| #40 | 62.1 | | | | | |
| #50 | | | | | | |
| #60 | 16.3 | | | | | |
| #100 | 5.2 | | | | | |
| #200 | 2.9 | | | | | |
| * - | | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



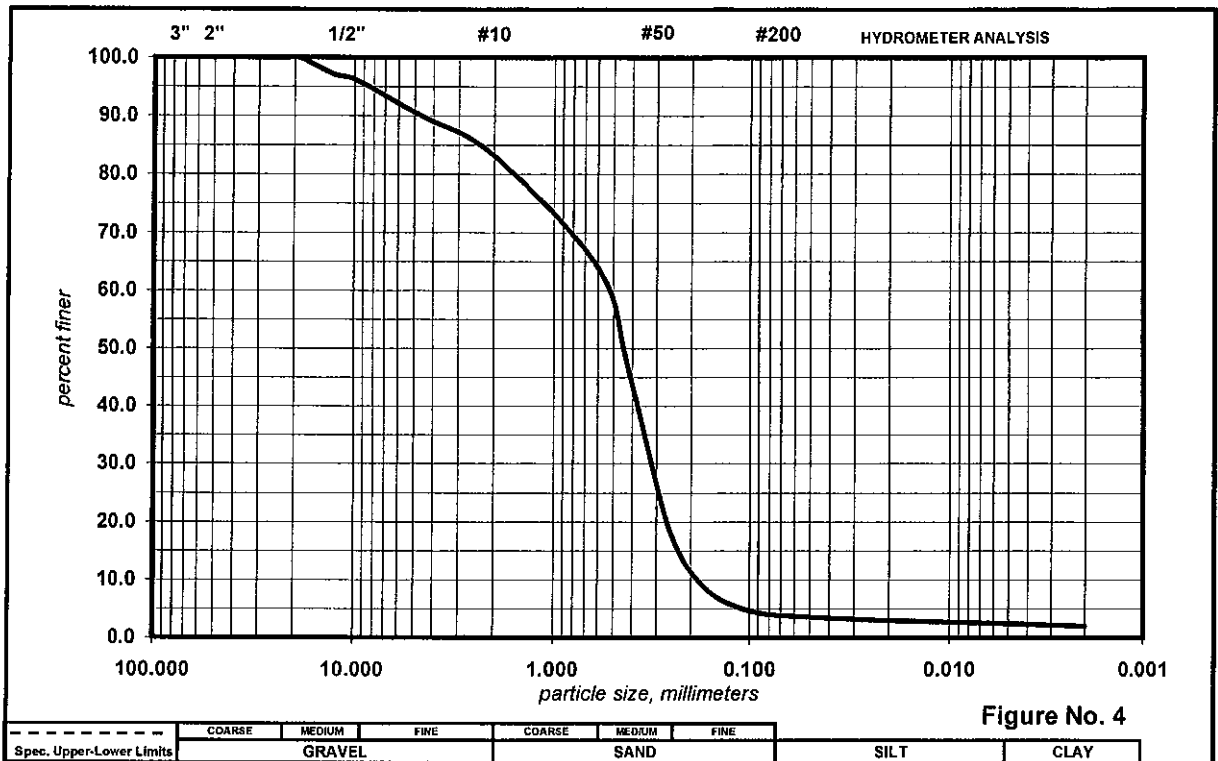
| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-1, S-3 | |
| 4" | | | | Lab No.: | A08-324-03 | |
| 2 1/2" | | | | Source/Location: | 15'-17' | |
| 2" | | | | Description: | Yel. Brown of SAND, trace Silt, little mf Gravel | |
| 1 1/2" | | | | | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 17.3 % | | |
| 1/2" | 100.0 | | | Classification: | | |
| 3/8" | 97.6 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 92.4 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 87.3 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 66.6 | | | Job No.: 08-431 | | |
| #40 | 47.6 | | | Report No.: 08-3025 | | |
| #50 | | | | | | |
| #60 | 16.8 | | | | | |
| #100 | 6.6 | | | | | |
| #200 | 3.5 | | | | | |

* -

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PARTICLE SIZE DISTRIBUTION TEST REPORT

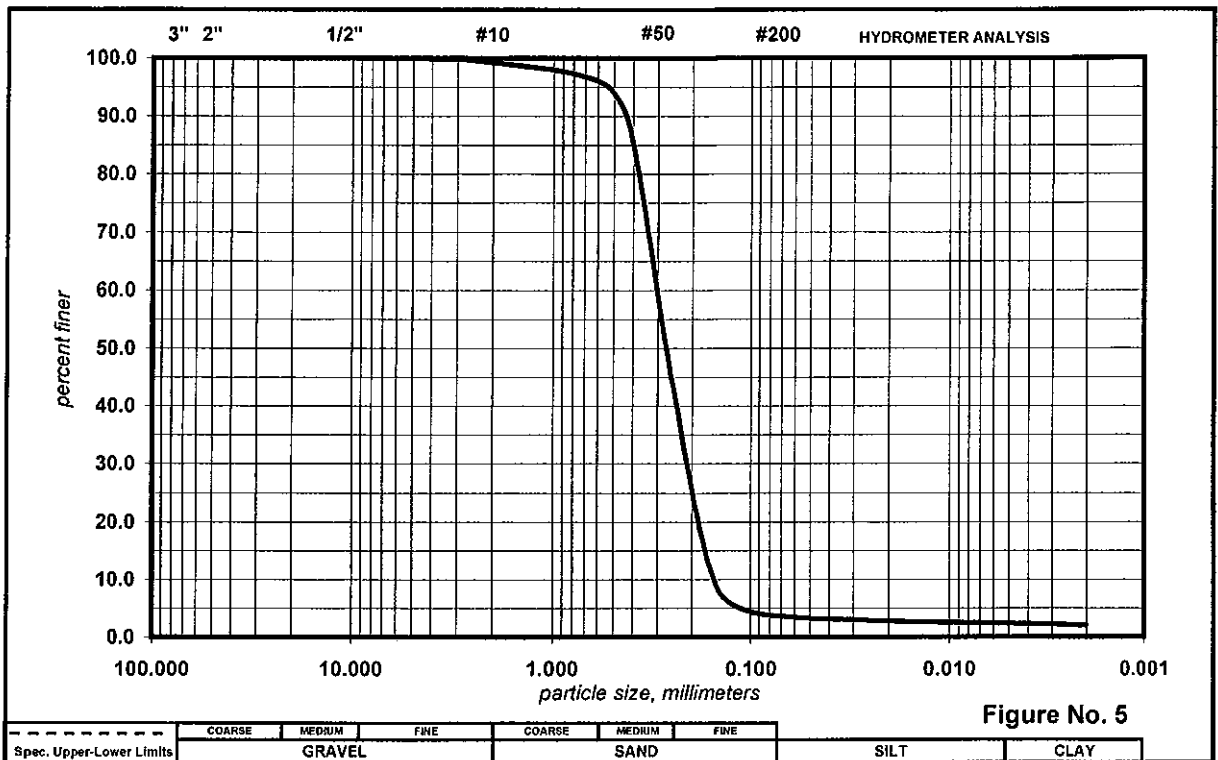


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-1, S-4 | |
| 4" | | | | Lab No.: | A08-324-04 | |
| 2 1/2" | | | | Source/Location: | 20'-22' | |
| 2" | | | | Description: | Yel. Brown of SAND, trace Silt, little mf Gravel | |
| 1 1/2" | | | | | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 16.3 % | | |
| 1/2" | 97.2 | | | Classification: | | |
| 3/8" | 95.9 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 90.3 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 83.3 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 63.6 | | | Job No.: 08-431 Report No.: 08-3025 | | |
| #40 | 46.4 | | | | | |
| #50 | | | | | | |
| #60 | 17.5 | | | | | |
| #100 | 7.2 | | | | | |
| #200 | 3.9 | | | | | |
| *- | | | | | | |

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| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | <div>Sample No.: RB-1, S-5</div> <div>Lab No.: A08-324-05</div> <div>Source/Location: 25'-27'</div> <div>Description: Yel. Brown of SAND, trace Silt, trace fine Gravel</div> <div>sample description in accordance with Burmister System</div> <div>LL : PL : PI :</div> <div>As Received Moisture Content: 25.7 %</div> <div>Classification: USCS: [SP] AASHTO:</div> <div>Remarks: Sample received in lab on September 17, 2008</div> <div>Client: SGS Environmental Services</div> <div>Project: Roosevelt Field</div> <div>Location: Garden City, New York</div> <div>Date: 26-Sep-08</div> <div>Job No.: 08-431 Report No.: 08-3025</div> | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | | | | | | |
| 3/8" | | | | | | |
| 5/16" | | | | | | |
| 1/4" | | | | | | |
| #4 | 100.0 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 99.2 | | | | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 96.0 | | | | | |
| #40 | 88.2 | | | | | |
| #50 | | | | | | |
| #60 | 43.5 | | | | | |
| #100 | 8.9 | | | | | |
| #200 | 3.7 | | | | | |

* -

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PARTICLE SIZE DISTRIBUTION TEST REPORT

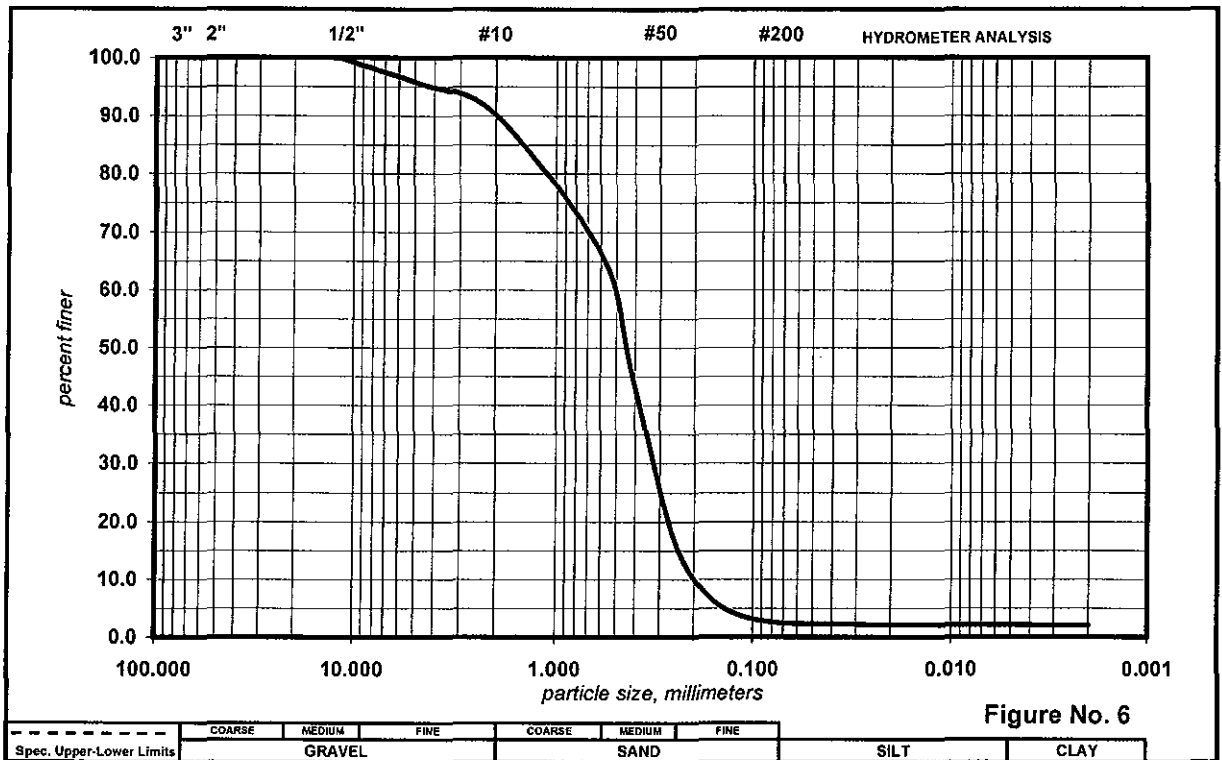


Figure No. 6

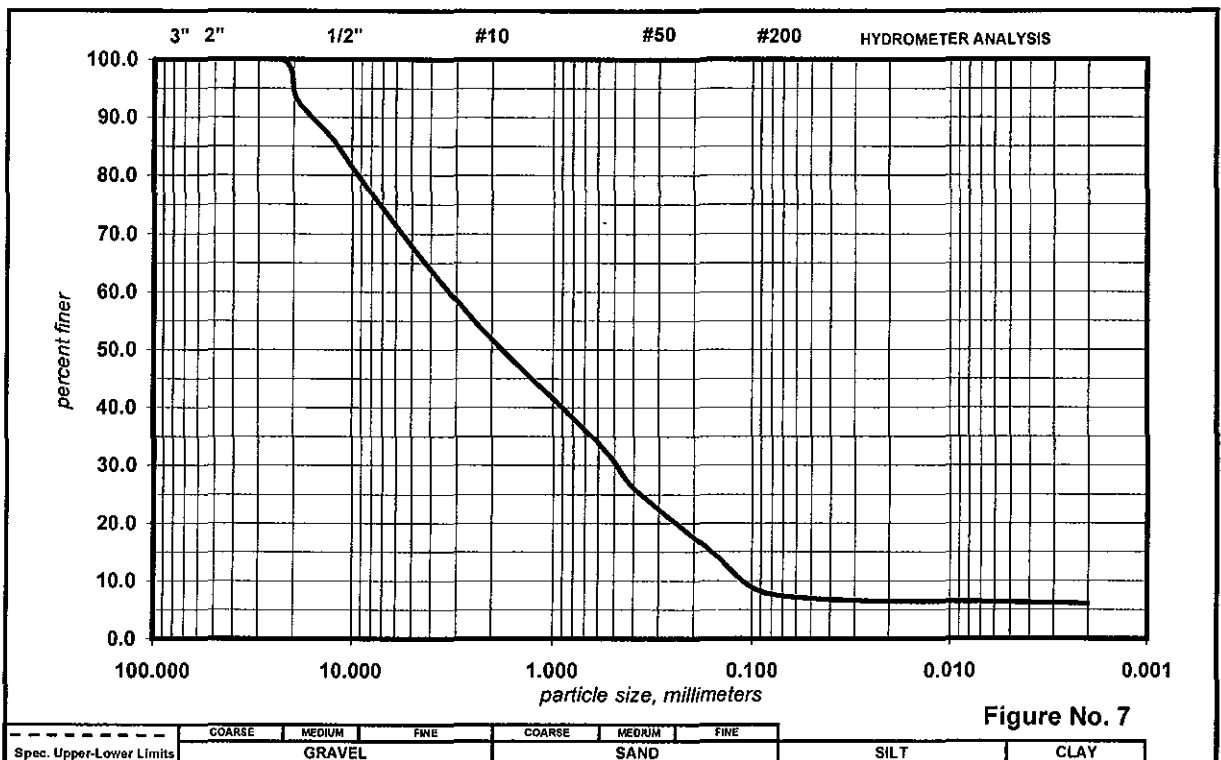
Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|--|---|------|
| 4" | | | | Sample No.: | RB-1, S-6 | |
| 2 1/2" | | | | Lab No.: | A08-324-06 | |
| 2" | | | | Source/Location: | 30'-32' | |
| 1 1/2" | | | | Description: | Lt. Yel. Brown of SAND, trace Silt, trace mf Gravel | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 18.9 % | | |
| 1/2" | 100.0 | | | Classification: | | |
| 3/8" | 98.9 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 95.5 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 90.3 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 65.9 | | | Job No.: 08-431 | | |
| #40 | 45.9 | | | Report No.: 08-3025 | | |
| #50 | | | | | | |
| #60 | 16.5 | | | | | |
| #100 | 5.7 | | | | | |
| #200 | 2.5 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT

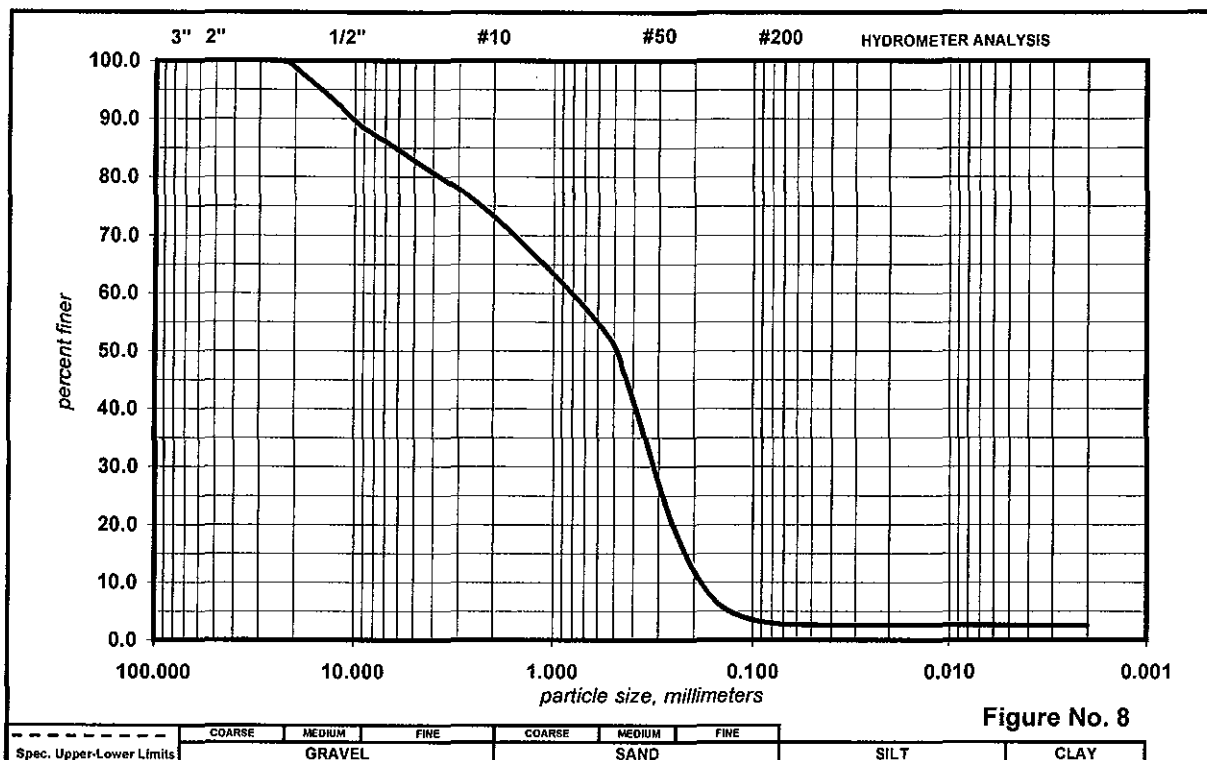


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|---|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-1, S-7 | | |
| 4" | | | | Lab No.: A08-324-07 | | |
| 2 1/2" | | | | Source/Location: 35'-37' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Lt.Br.Gray/Br.Yellow of Sand, trace Silt, and mf Gravel | | |
| 1" | 100.0 | | | sample description in accordance with Burmister System | | |
| 3/4" | 93.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 11.8 % | | |
| 1/2" | 86.4 | | | Classification: | | |
| 3/8" | 80.6 | | | USCS: [SW-SM] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 66.9 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | Client: SGS Environmental Services | | |
| #8 | | | | Project: Roosevelt Field | | |
| #10 | 51.8 | | | Location: Garden City, New York | | |
| #14 | | | | Date: 26-Sep-08 | | |
| #16 | | | | Job No.: 08-431 | | |
| #20 | | | | Report No.: 08-3025 | | |
| #30 | 33.6 | | | | | |
| #40 | 26.8 | | | | | |
| #50 | | | | | | |
| #60 | 20.2 | | | | | |
| #100 | 14.1 | | | | | |
| #200 | 7.5 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT

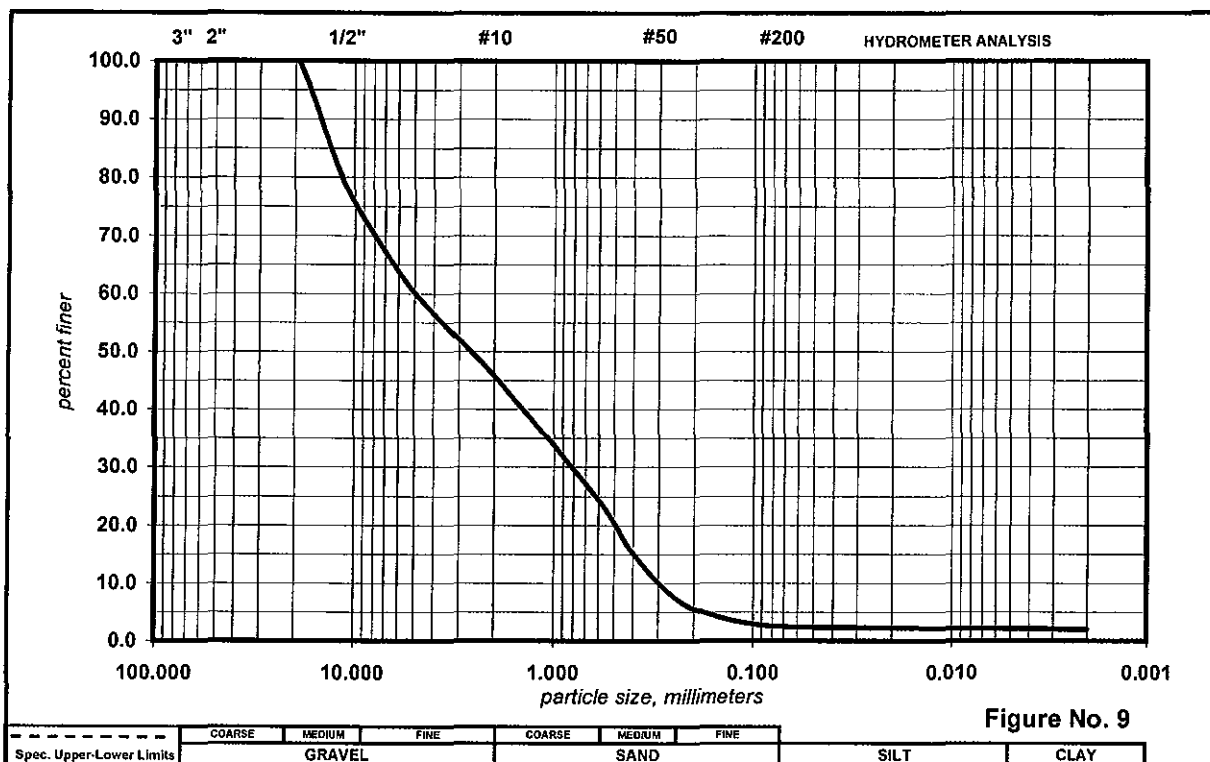


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-2, S-1 | |
| 4" | | | | Lab No.: | A08-324-08 | |
| 2 1/2" | | | | Source/Location: | 5'-7' | |
| 2" | | | | Description: | Yel. Brown of SAND, trace Silt, some mf Gravel | |
| 1 1/2" | | | | sample description in accordance with Burmister System | | |
| 1" | 100.0 | | | LL : | PL : | PI : |
| 3/4" | 98.2 | | | As Received Moisture Content: 4.1 % | | |
| 5/8" | | | | Classification: | | |
| 1/2" | 93.1 | | | USCS: [SP] | | |
| 3/8" | 89.1 | | | AASHTO: | | |
| 5/16" | | | | Remarks: | | |
| 1/4" | | | | Sample received in lab on September 17, 2008 | | |
| #4 | 82.4 | | | Client: SGS Environmental Services | | |
| #6 | | | | Project: Roosevelt Field | | |
| #8 | | | | Location: Garden City, New York | | |
| #10 | 73.3 | | | Date: 26-Sep-08 | | |
| #14 | | | | Job No.: 08-431 | | |
| #16 | | | | Report No.: 08-3025 | | |
| #20 | | | | | | |
| #30 | 54.5 | | | | | |
| #40 | 43.6 | | | | | |
| #50 | | | | | | |
| #60 | 19.2 | | | | | |
| #100 | 6.4 | | | | | |
| #200 | 2.9 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT

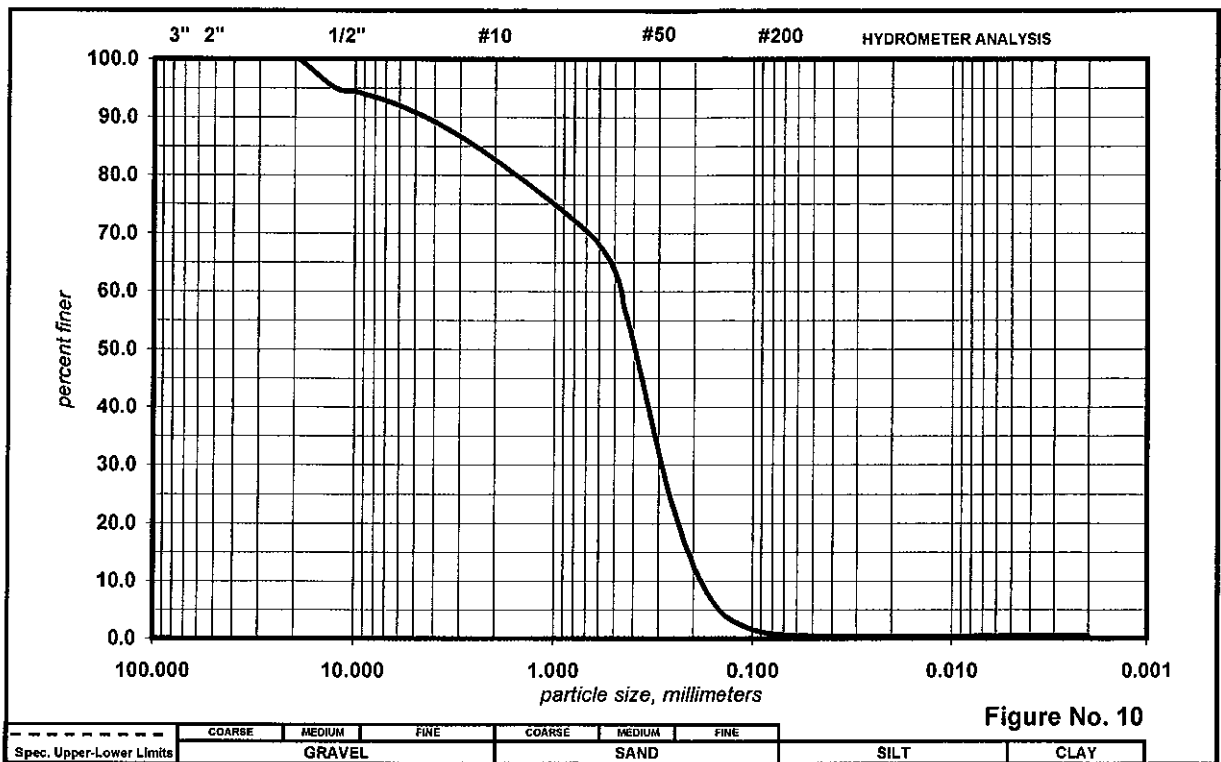


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|---|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-2, S-2 | | |
| 4" | | | | Lab No.: A08-324-09 | | |
| 2 1/2" | | | | Source/Location: 10'-12' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Br. Yellow mf GRAVEL and, cf Sand, trace Silt | | |
| 1" | | | | sample description in accordance with <i>Burmister System</i> | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 5.4 % | | |
| 1/2" | 83.8 | | | Classification: | | |
| 3/8" | 74.5 | | | USCS: [SW] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 59.3 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 45.9 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 24.0 | | | Job No.: 08-431 | | |
| #40 | 16.1 | | | Report No.: 08-3025 | | |
| #50 | | | | | | |
| #60 | 7.5 | | | | | |
| #100 | 4.3 | | | | | |
| #200 | 2.5 | | | | | |
| *- | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-2, S-3 | |
| 4" | | | | Lab No.: | A08-324-10 | |
| 2 1/2" | | | | Source/Location: | 15'-17' | |
| 2" | | | | Description: | Lt. Yel. Brown of SAND, trace Silt, little mf Gravel | |
| 1 1/2" | | | | | | |
| 1" | | | | sample description in accordance with Burnister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 15.8 % | | |
| 1/2" | 95.1 | | | Classification: | | |
| 3/8" | 94.3 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 90.6 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 82.7 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 67.7 | | | Job No.: 08-431 | | |
| #40 | 53.6 | | | Report No.: 08-3025 | | |
| #50 | | | | | | |
| #60 | 22.2 | | | | | |
| #100 | 5.5 | | | | | |
| #200 | 0.7 | | | | | |
| *- | | | | | | |

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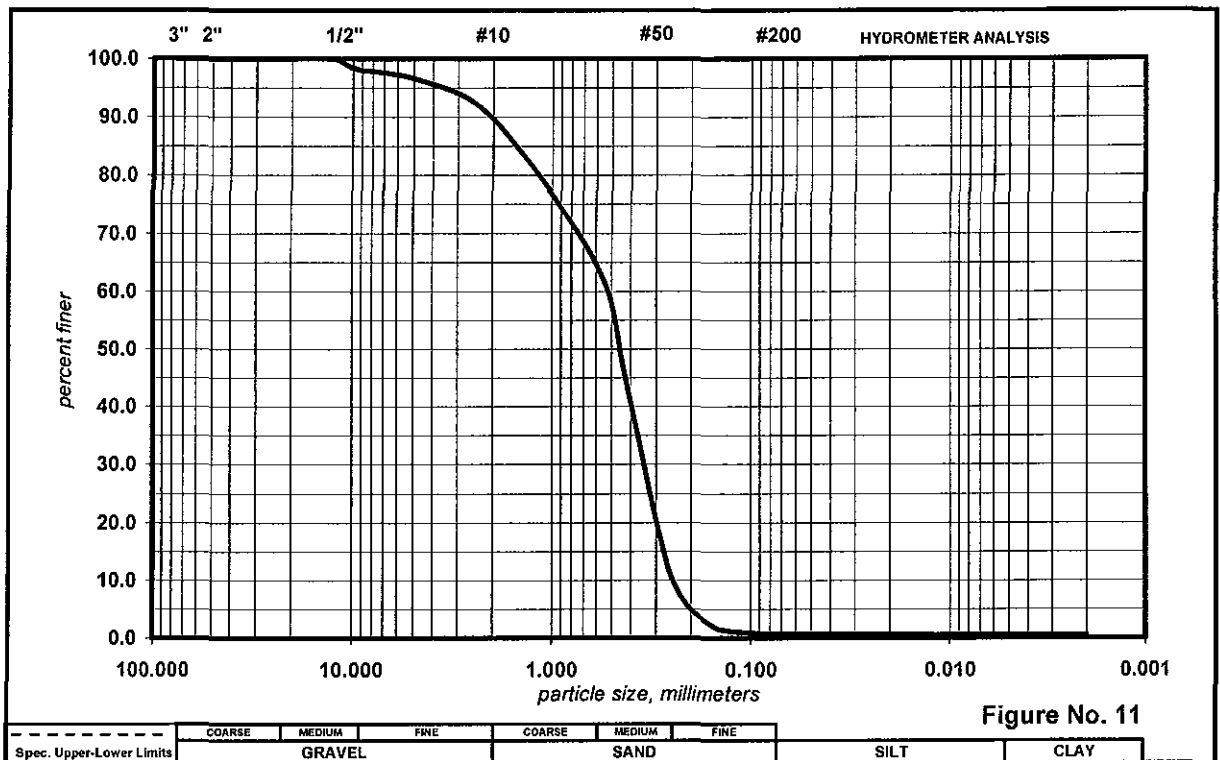


Figure No. 11

Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|---|-------------|-------------|
| 4" | | | | Sample No.: RB-2, S-4 Lab No.: A08-324-11 Source/Location: 20'-22' Description: Lt. Yel. Brown of SAND, trace Silt, little mf Gravel <i>sample description in accordance with Burmister System</i> | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | 100.0 | | | LL : | PL : | PI : |
| 3/8" | 98.2 | | | As Received Moisture Content: 19.3 % | | |
| 5/16" | | | | | | |
| 1/4" | | | | Classification: USCS: [SP] AASHTO: | | |
| #4 | 96.4 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 89.7 | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 64.2 | | | | | |
| #40 | 43.8 | | | | | |
| #50 | | | | | | |
| #60 | 10.5 | | | | | |
| #100 | 1.8 | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |
| #200 | 0.7 | | | | | |
| * - | | | | | | |

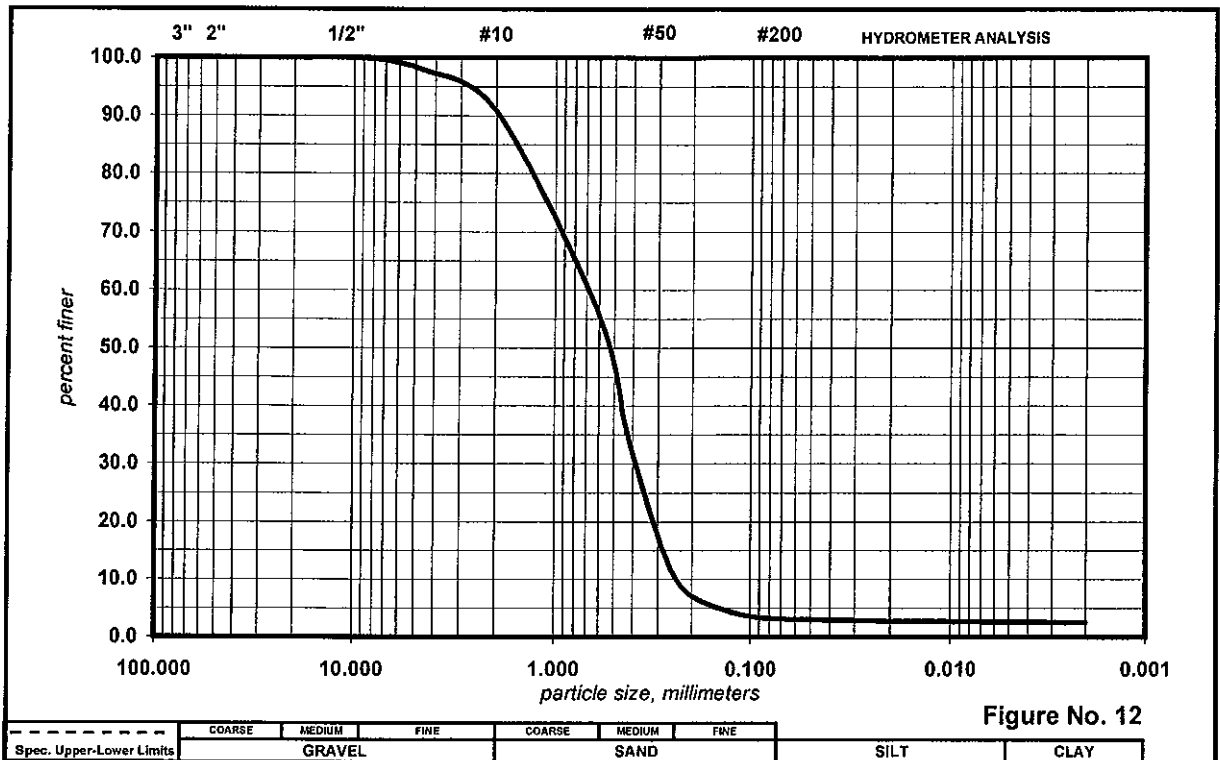
* -

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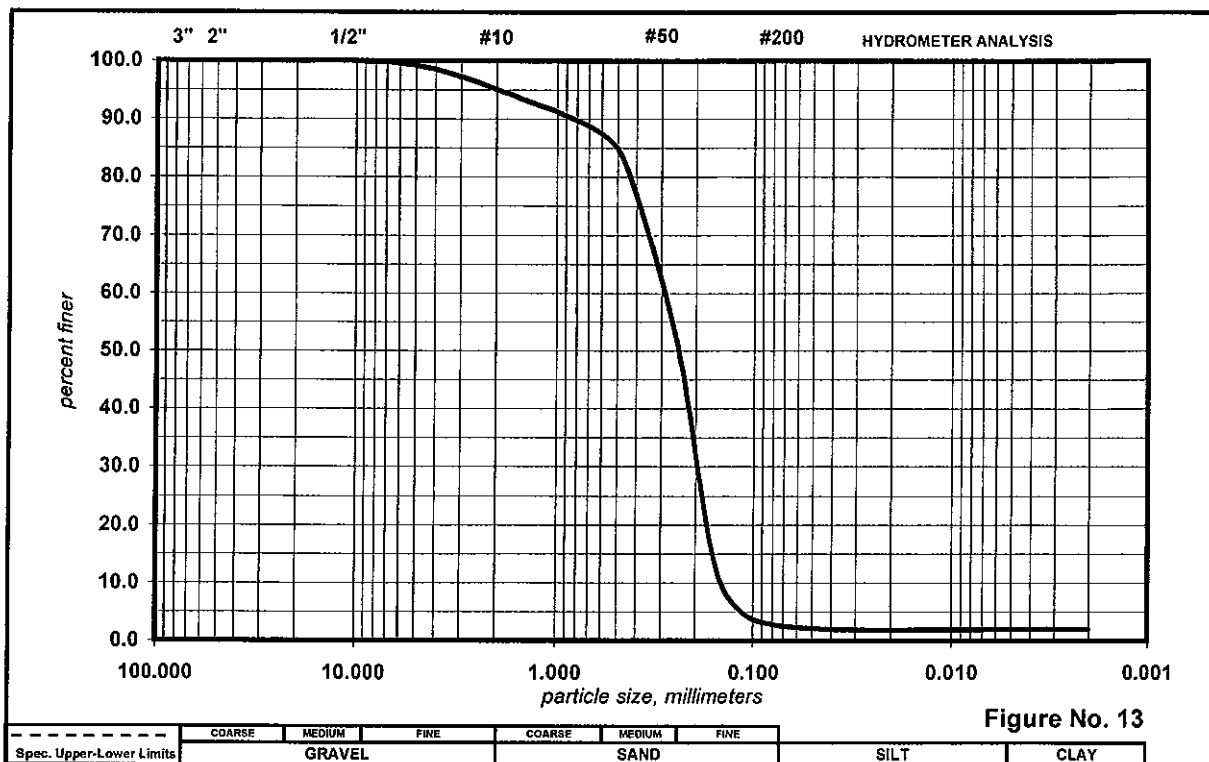
Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|--|---|-------------|
| 4" | | | | Sample No.: | RB-2, S-5 | |
| 2 1/2" | | | | Lab No.: | A08-324-12 | |
| 2" | | | | Source/Location: | 25'-27' | |
| 1 1/2" | | | | Description: | Lt. Yel. Brown of SAND, trace Silt, trace fine Gravel sample description in accordance with Burmister System | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | | | | | | |
| 3/8" | 100.0 | | | LL : | PL : | PI : |
| 5/16" | | | | As Received Moisture Content: 16.3 % | | |
| 1/4" | | | | Classification: USCS: [SP] AASHTO: | | |
| #4 | 98.1 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 90.9 | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 55.0 | | | | | |
| #40 | 34.1 | | | | | |
| #50 | | | | | | |
| #60 | 10.9 | | | Client: | SGS Environmental Services | |
| #100 | 5.2 | | | Project: | Roosevelt Field | |
| #200 | 3.2 | | | Location: | Garden City, New York | |
| * - | | | | Date: | 26-Sep-08 | |
| | | | | Job No.: | 08-431 | Report No.: |

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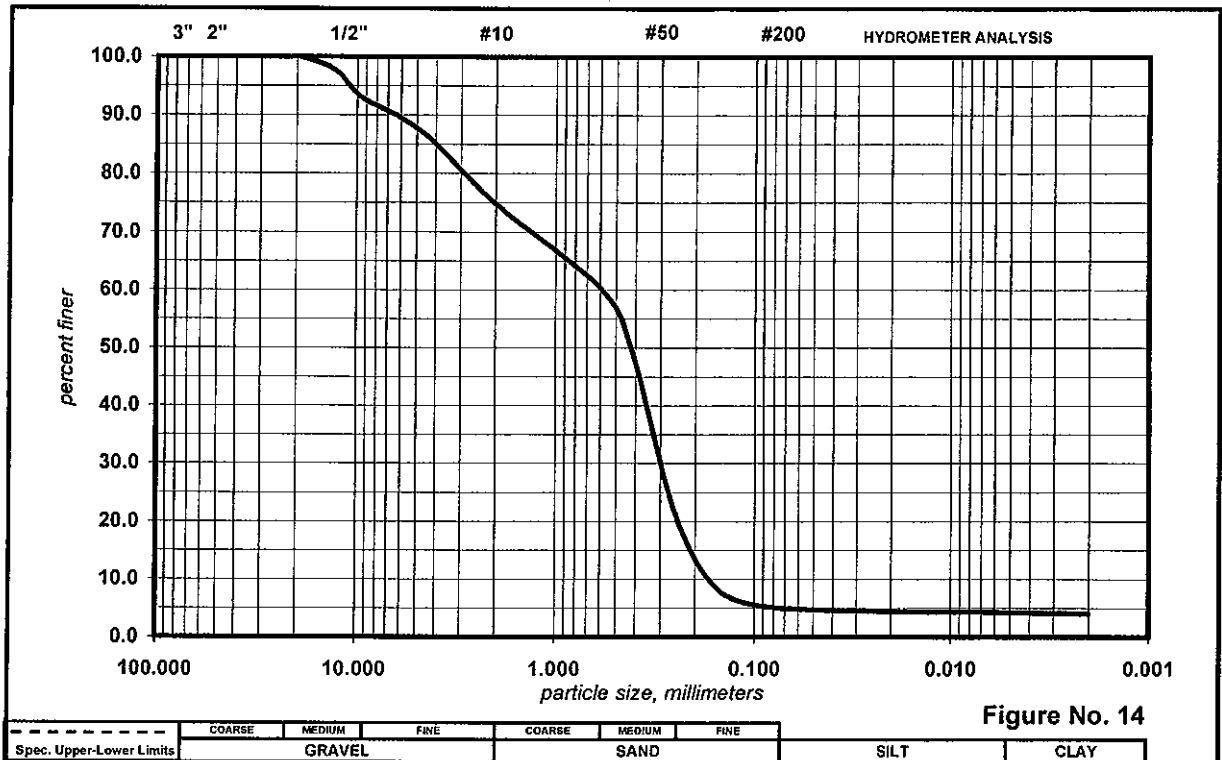


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-2, S-6 Lab No.: A08-324-13 Source/Location: 30'-32' Description: Lt. Yel. Brown of SAND, trace Silt, trace fine Gravel <i>sample description in accordance with Burmister System</i> | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | | | | | | |
| 3/8" | 100.0 | | | | | |
| 5/16" | | | | LL : PL : PI : As Received Moisture Content: 24.2 % | | |
| 1/4" | | | | | | |
| #4 | 99.0 | | | Classification: USCS: [SP] AASHTO: | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 95.1 | | | | | |
| #14 | | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 87.3 | | | | | |
| #40 | 78.8 | | | | | |
| #50 | | | | | | |
| #60 | 51.4 | | | | | |
| #100 | 10.9 | | | | | |
| #200 | 2.7 | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |
| *- | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



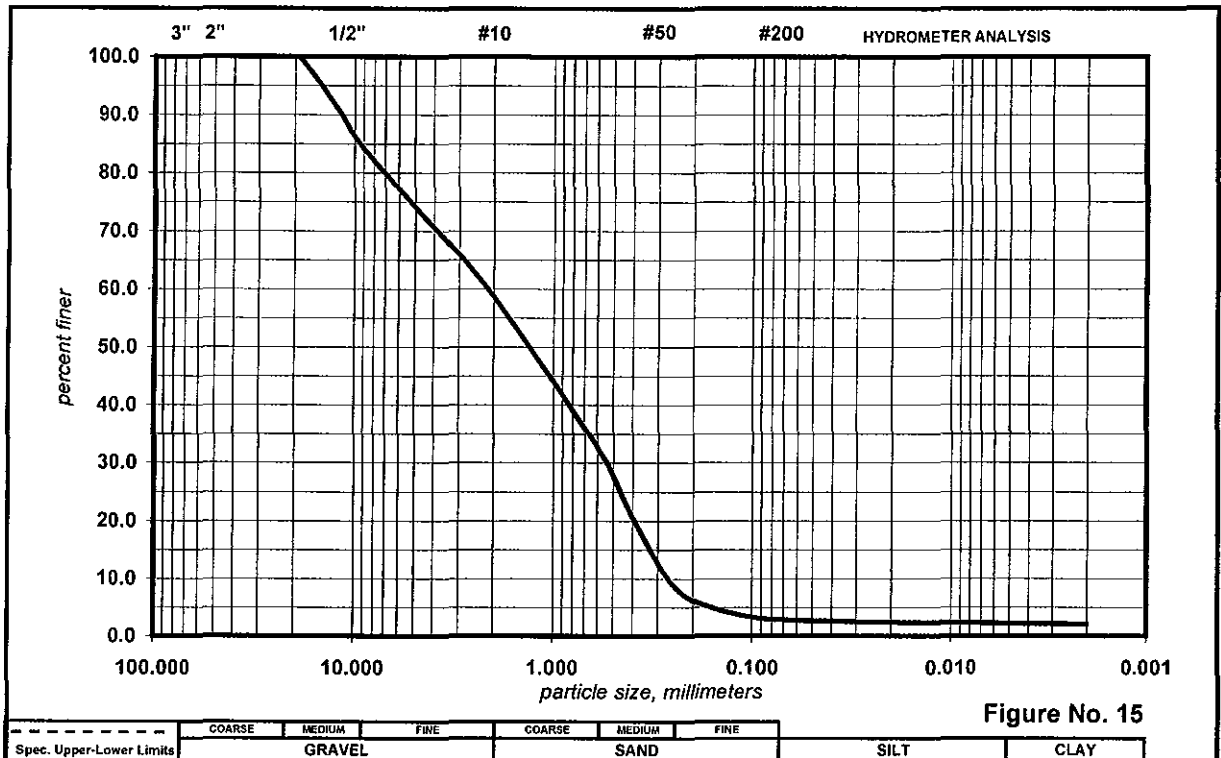
| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-2, S-7 Lab No.: A08-324-14 Source/Location: 35'-37' Description: Yellowish Brown of SAND, trace Silt, some mf Gravel <i>sample description in accordance with Burmister System</i> | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | 100.0 | | | | | |
| 5/8" | | | | | | |
| 1/2" | 97.5 | | | | | |
| 3/8" | 93.1 | | | | | |
| 5/16" | | | | LL : PL : PI : | | |
| 1/4" | | | | As Received Moisture Content: 18.9 % | | |
| #4 | 87.2 | | | Classification: USCS: [SP-SM] AASHTO: | | |
| #6 | | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #8 | | | | | | |
| #10 | 74.9 | | | | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 60.0 | | | | | |
| #40 | 49.6 | | | | | |
| #50 | | | | | | |
| #60 | 21.0 | | | | | |
| #100 | 7.9 | | | Client: SGS Environmental Services | | |
| #200 | 5.0 | | | Project: Roosevelt Field | | |
| | | | | Location: Garden City, New York | | |
| | | | | Date: 26-Sep-08 | | |
| | | | | Job No.: 08-431 Report No.: 08-3025 | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-3, S-1 | | |
| 4" | | | | Lab No.: A08-324-15 | | |
| 2 1/2" | | | | Source/Location: 5'-7' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Br. Yellow of SAND, trace Silt, and mf Gravel | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 3.4 % | | |
| 1/2" | 91.9 | | | Classification: | | |
| 3/8" | 85.5 | | | USCS: [SW] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 73.3 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | Client: SGS Environmental Services | | |
| #8 | | | | Project: Roosevelt Field | | |
| #10 | 58.7 | | | Location: Garden City, New York | | |
| #14 | | | | Date: 26-Sep-08 | | |
| #16 | | | | Job No.: 08-431 | | |
| #20 | | | | Report No.: 08-3025 | | |
| #30 | 32.3 | | | | | |
| #40 | 21.9 | | | | | |
| #50 | | | | | | |
| #60 | 8.8 | | | | | |
| #100 | 4.6 | | | | | |
| #200 | 2.8 | | | | | |

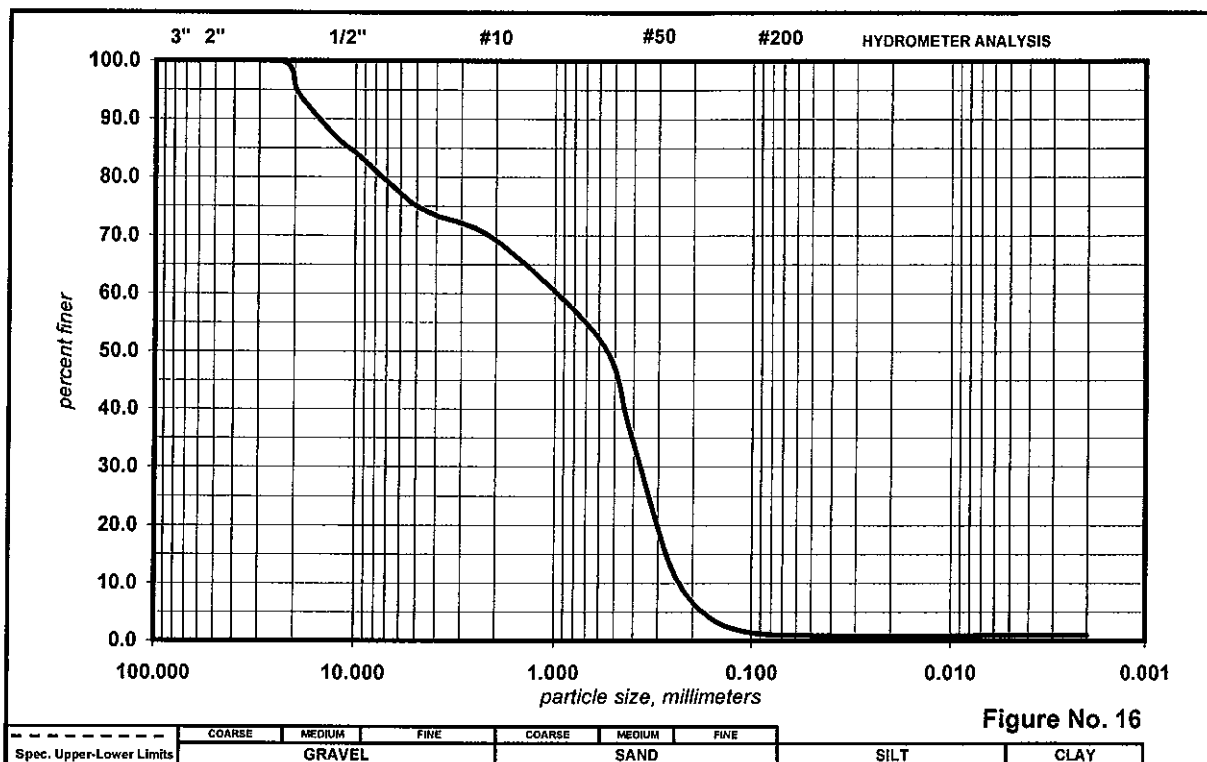
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PARTICLE SIZE DISTRIBUTION TEST REPORT

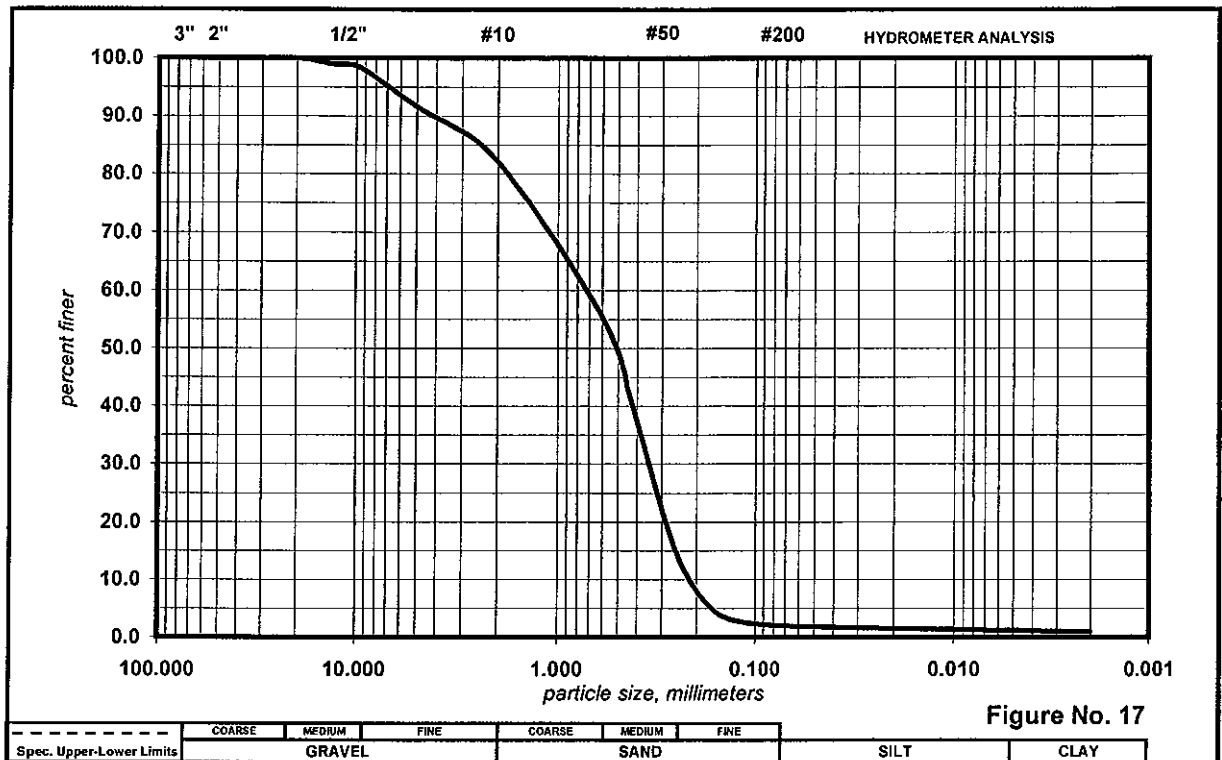


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-3, S-2 | | |
| 4" | | | | Lab No.: A08-324-16 | | |
| 2 1/2" | | | | Source/Location: 10'-12' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Lt. Yel. Brown of SAND, trace Silt, some mf Gravel | | |
| 1" | 100.0 | | | sample description in accordance with Burmister System | | |
| 3/4" | 94.4 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 4.8 % | | |
| 1/2" | 87.1 | | | Classification: | | |
| 3/8" | 83.7 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 74.7 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 69.1 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 51.8 | | | Job No.: 08-431 Report No.: 08-3025 | | |
| #40 | 36.4 | | | | | |
| #50 | | | | | | |
| #60 | 12.0 | | | | | |
| #100 | 3.3 | | | | | |
| #200 | 1.1 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



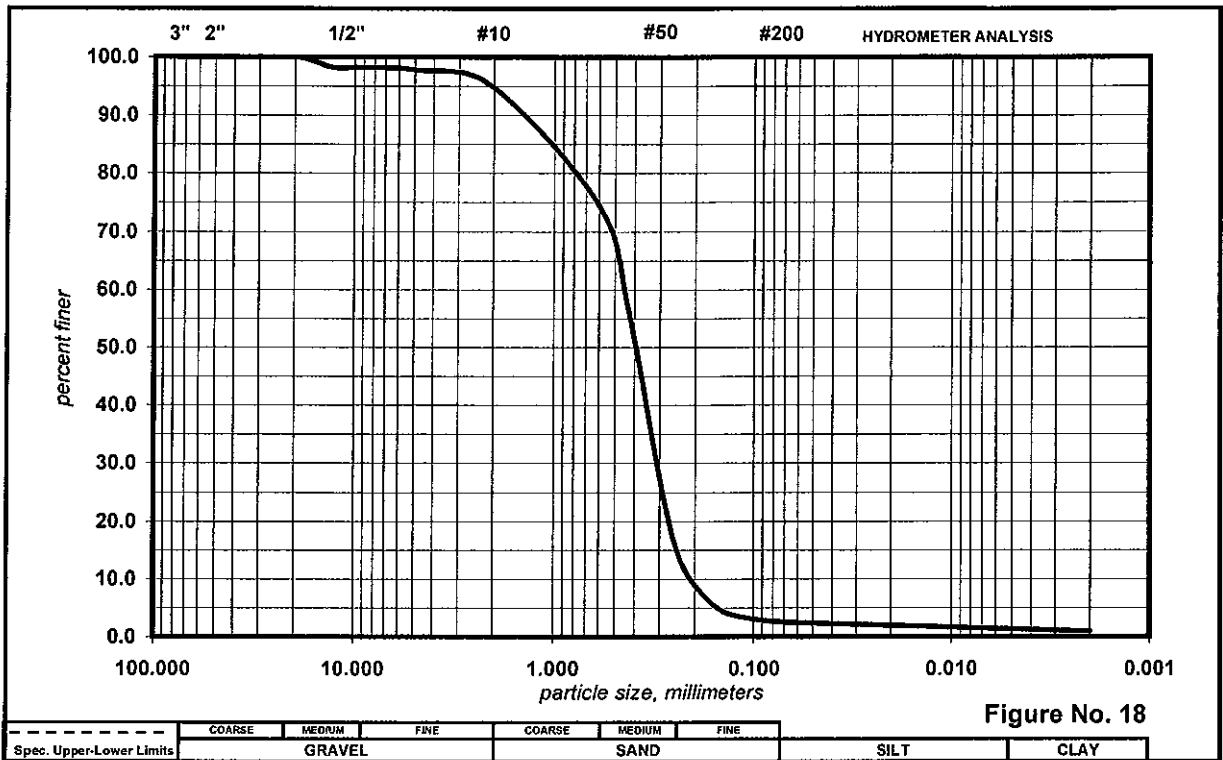
| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-3, S-3 | | |
| 4" | | | | Lab No.: A08-324-17 | | |
| 2 1/2" | | | | Source/Location: 15'-17' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Yel. Brown of SAND, trace Silt, little mf Gravel | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 15.9 % | | |
| 1/2" | 98.9 | | | Classification: | | |
| 3/8" | 98.3 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 91.2 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | Client: SGS Environmental Services | | |
| #8 | | | | Project: Roosevelt Field | | |
| #10 | 82.2 | | | Location: Garden City, New York | | |
| #14 | | | | Date: 26-Sep-08 | | |
| #16 | | | | Job No.: 08-431 Report No.: 08-3025 | | |
| #20 | | | | | | |
| #30 | 54.9 | | | | | |
| #40 | 39.6 | | | | | |
| #50 | | | | | | |
| #60 | 14.4 | | | | | |
| #100 | 3.9 | | | | | |
| #200 | 2.0 | | | | | |

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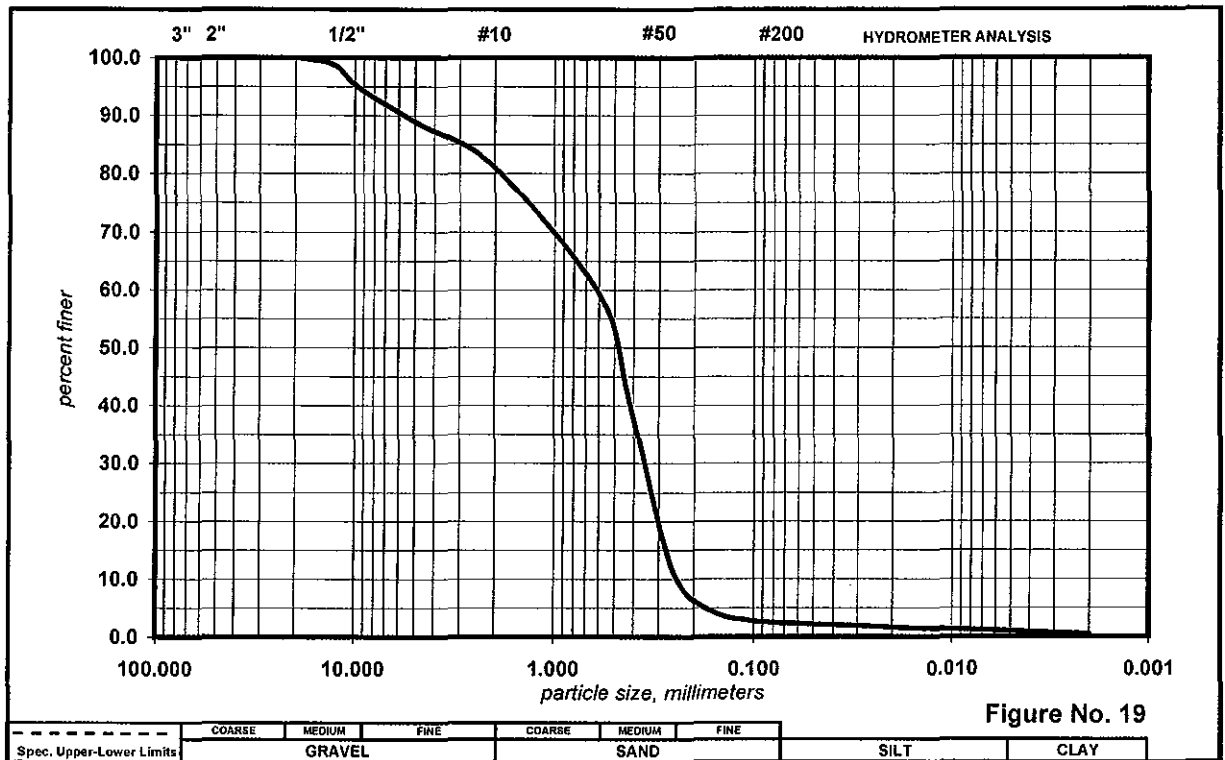
PARTICLE SIZE DISTRIBUTION TEST REPORT



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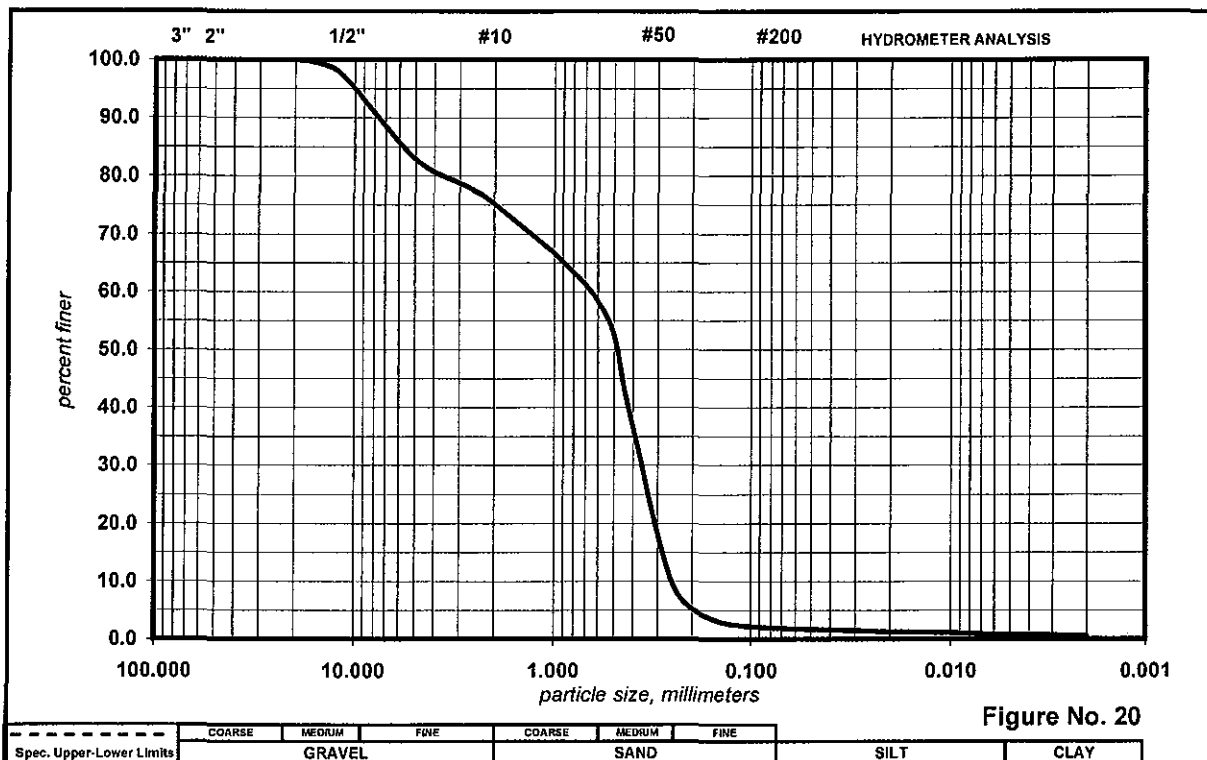


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|---|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: | RB-3, S-5 | |
| 4" | | | | Lab No.: | A08-324-19 | |
| 2 1/2" | | | | Source/Location: | 25'-27' | |
| 2" | | | | Description: | Yellowish Brown of SAND, trace Silt, little mf Gravel | |
| 1 1/2" | | | | | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 17.7 % | | |
| 1/2" | 98.8 | | | Classification: | | |
| 3/8" | 94.8 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 88.6 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | Client: | | |
| #8 | | | | SGS Environmental Services | | |
| #10 | 81.1 | | | Project: | | |
| #14 | | | | Roosevelt Field | | |
| #16 | | | | Location: | | |
| #20 | | | | Garden City, New York | | |
| #30 | 58.9 | | | Date: | | |
| #40 | 40.5 | | | 26-Sep-08 | | |
| #50 | | | | Job No.: | | |
| #60 | 10.7 | | | 08-431 | | |
| #100 | 3.9 | | | Report No.: | | |
| #200 | 2.4 | | | 08-3025 | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



Specification*

| Specification | | | | Sample Identification | | |
|---------------|-------|--|--|--|--|------|
| 4" | | | | Sample No.: | RB-3, S-6 | |
| 2 1/2" | | | | Lab No.: | A08-324-20 | |
| 2" | | | | Source/Location: | 30'-32' | |
| 1 1/2" | | | | Description: | Lt. Yel. Brown of SAND, trace Silt, some mf Gravel sample description in accordance with Burmister System | |
| 1" | | | | | | |
| 3/4" | 100.0 | | | | | |
| 5/8" | | | | | | |
| 1/2" | 98.4 | | | | | |
| 3/8" | 94.3 | | | LL : | PL : | PI : |
| 5/16" | | | | As Received Moisture Content: 18.4 % | | |
| 1/4" | | | | Classification: USCS: [SP] AASHTO: | | |
| #4 | 82.3 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 75.3 | | | | | |
| #14 | | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 58.0 | | | | | |
| #40 | 39.4 | | | | | |
| #50 | | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |
| #60 | 9.5 | | | | | |
| #100 | 3.2 | | | | | |
| #200 | 1.9 | | | | | |
| * - | | | | | | |

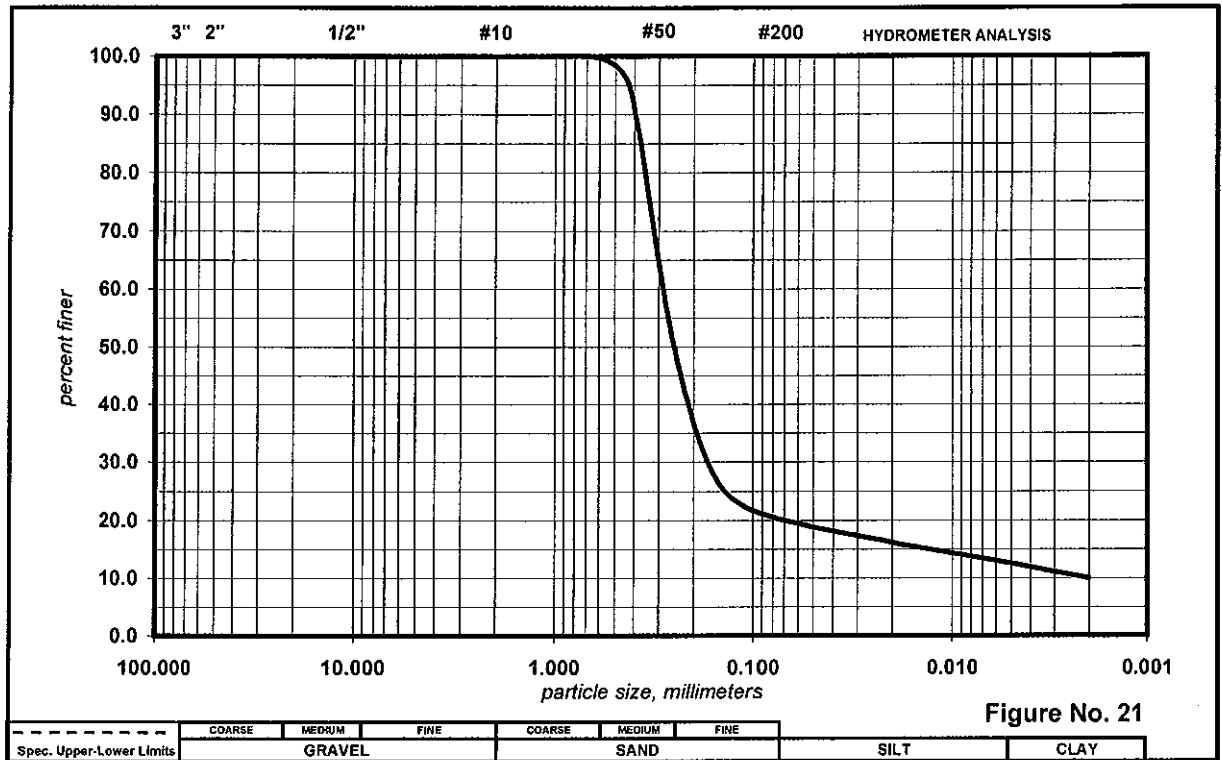
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PARTICLE SIZE DISTRIBUTION TEST REPORT



| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-3, S-7 | | |
| 4" | | | | Lab No.: A08-324-21 | | |
| 2 1/2" | | | | Source/Location: 35'-37' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Br. Yellow/Pale Yellow of SAND, some Clayey Silt | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 23.2 % | | |
| 1/2" | | | | Classification: | | |
| 3/8" | | | | USCS: [SM] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | Client: SGS Environmental Services | | |
| #8 | | | | Project: Roosevelt Field | | |
| #10 | 100.0 | | | Location: Garden City, New York | | |
| #14 | | | | Date: 26-Sep-08 | | |
| #16 | | | | Job No.: 08-431 Report No.: 08-3025 | | |
| #20 | | | | | | |
| #30 | 99.6 | | | | | |
| #40 | 94.2 | | | | | |
| #50 | | | | | | |
| #60 | 49.9 | | | | | |
| #100 | 26.7 | | | | | |
| #200 | 20.2 | | | | | |

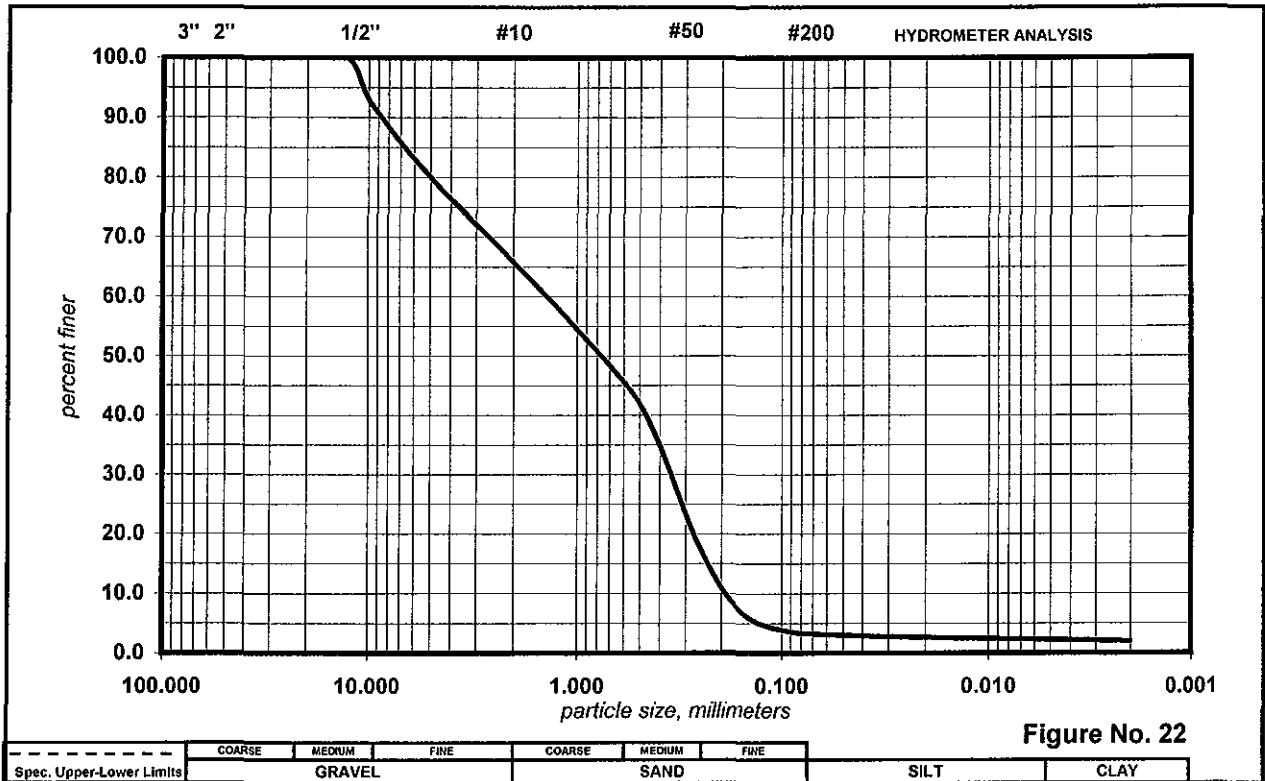
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PARTICLE SIZE DISTRIBUTION TEST REPORT

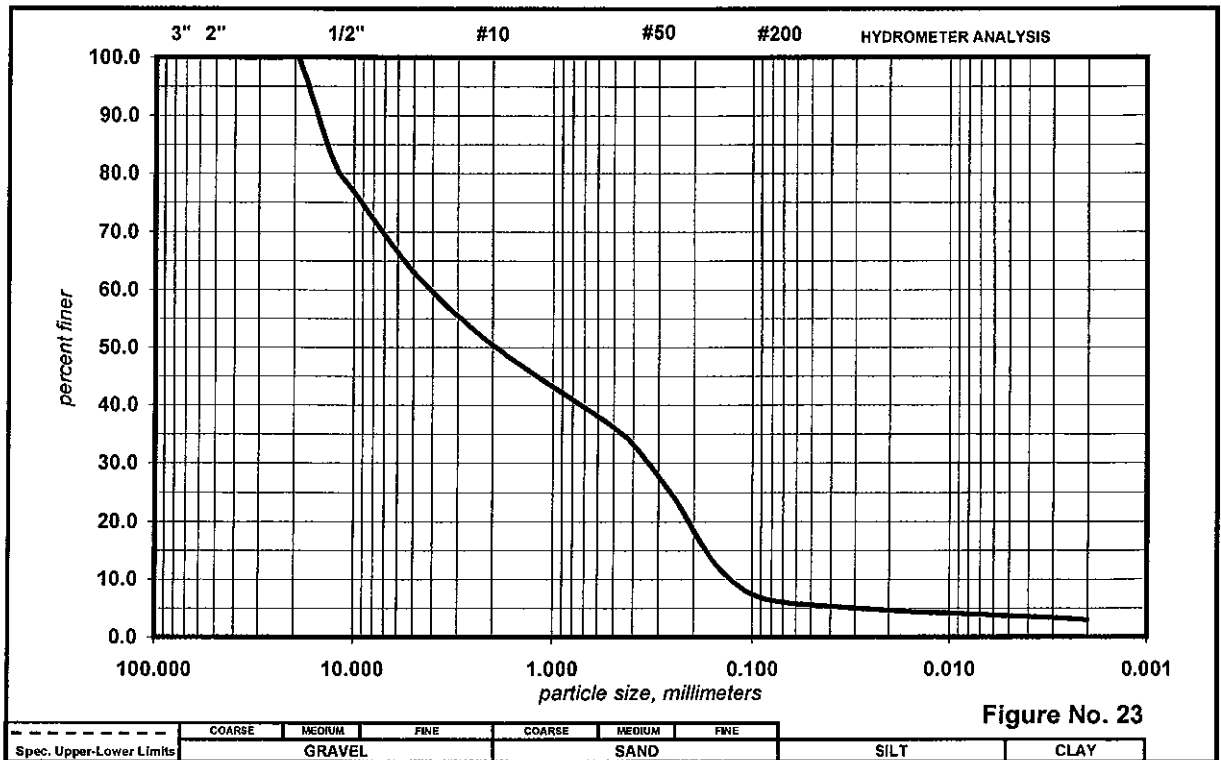


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|---|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-4, S-1 Lab No.: A08-324-22 Source/Location: 5'-7' Description: Lt. Yel. Brown of SAND, trace Silt, some mf Gravel <i>sample description in accordance with Burmister System</i> | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | 100.0 | | | | | |
| 3/8" | 91.9 | | | | | |
| 5/16" | | | | LL : PL : PI : As Received Moisture Content: 3.8 % | | |
| 1/4" | | | | | | |
| #4 | 79.2 | | | | | |
| #6 | | | | Classification: USCS: [SW] AASHTO: | | |
| #8 | | | | | | |
| #10 | 65.9 | | | | | |
| #14 | | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 45.4 | | | | | |
| #40 | 36.8 | | | | | |
| #50 | | | | | | |
| #60 | 17.1 | | | | | |
| #100 | 6.1 | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |
| #200 | 3.3 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



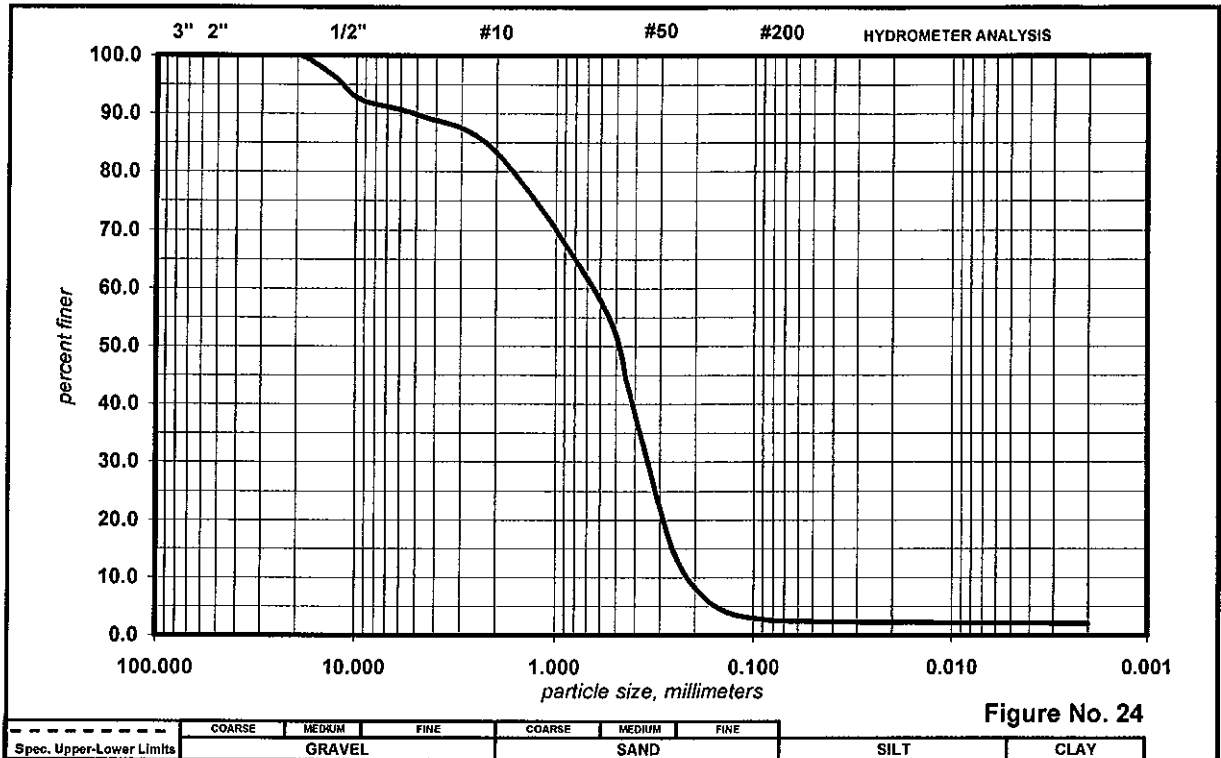
| Specification* | | | |
|--|------------------|----------------|--------------|
| Spec. Upper-Lower Limits | COARSE GRAVEL | MEDIUM SAND | FINE CLAY |
| Sieve Size | % Finer | Min.(%) | Max.(%) |
| 4" | | | |
| 2 1/2" | | | |
| 2" | | | |
| 1 1/2" | | | |
| 1" | | | |
| 3/4" | 100.0 | | |
| 5/8" | | | |
| 1/2" | 82.1 | | |
| 3/8" | 76.0 | | |
| 5/16" | | | |
| 1/4" | | | |
| #4 | 62.3 | | |
| #6 | | | |
| #8 | | | |
| #10 | 50.4 | | |
| #14 | | | |
| #16 | | | |
| #20 | | | |
| #30 | 37.9 | | |
| #40 | 34.0 | | |
| #50 | | | |
| #60 | 24.1 | | |
| #100 | 12.2 | | |
| #200 | 6.2 | | |
| Sample Identification Sample No.: RB-4, S-2 Lab No.: A08-324-23 Source/Location: 10'-12' Description: Pale Yel./Lt. Yel. Br. of Sand, trace Silt, and mf Gravel <i>sample description in accordance with Burnister System</i> LL : PL : PI : As Received Moisture Content: 3.8 % Classification: USCS: [SW] AASHTO: Remarks: Sample received in lab on September 17, 2008 Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | | |

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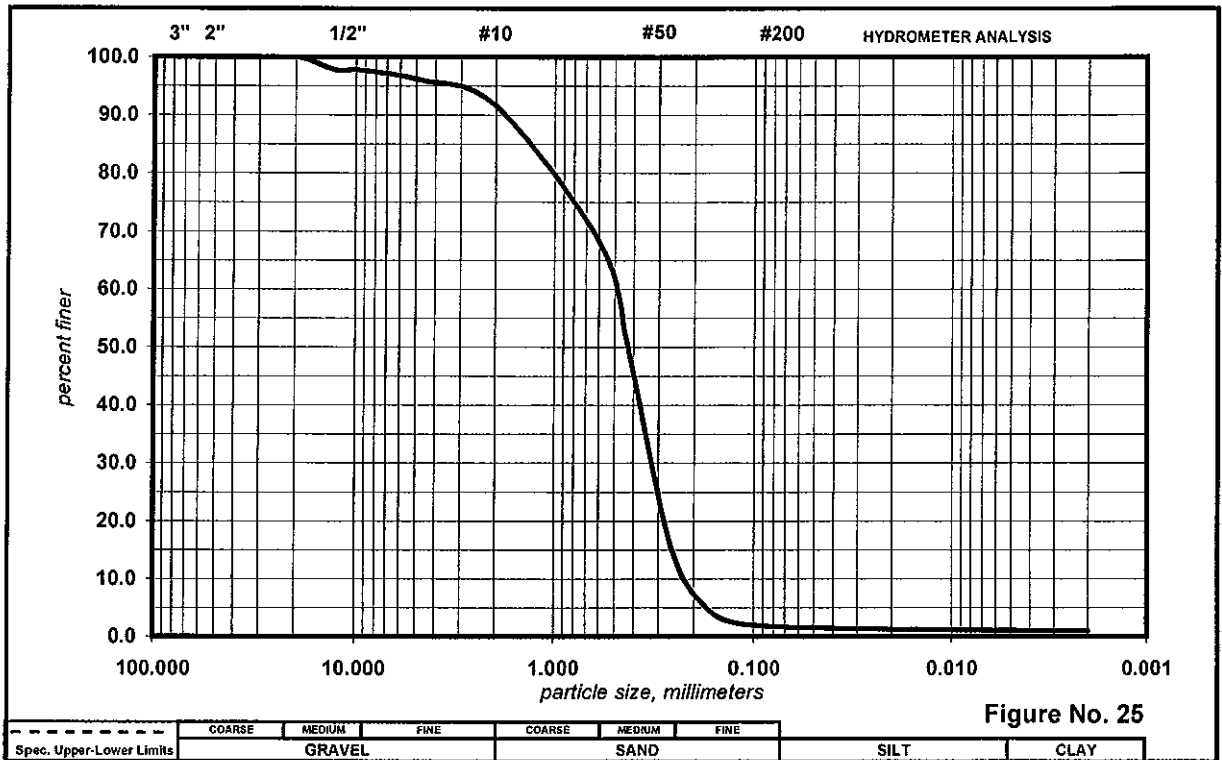


| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|---|--|--|
| Sieve Size | % Finer | Min.(%) | Max.(%) | <div>Sample No.: RB-4, S-3</div> <div>Lab No.: A08-324-24</div> <div>Source/Location: 15'-17'</div> <div>Description: Yel. Brown of SAND, trace Silt, little mf Gravel</div> <div>sample description in accordance with Burmister System</div> <div>LL : PL : PI :</div> <div>As Received Moisture Content: 15.6 %</div> <div>Classification: USCS: [SP] AASHTO:</div> <div>Remarks: Sample received in lab on September 17, 2008</div> <div>Client: SGS Environmental Services</div> <div>Project: Roosevelt Field</div> <div>Location: Garden City, New York</div> <div>Date: 26-Sep-08</div> <div>Job No.: 08-431 Report No.: 08-3025</div> | | |
| 4" | | | | | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | 100.0 | | | | | |
| 5/8" | | | | | | |
| 1/2" | 96.2 | | | | | |
| 3/8" | 92.4 | | | | | |
| 5/16" | | | | | | |
| 1/4" | | | | | | |
| #4 | 89.6 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 83.3 | | | | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 57.5 | | | | | |
| #40 | 40.8 | | | | | |
| #50 | | | | | | |
| #60 | 13.7 | | | | | |
| #100 | 4.7 | | | | | |
| #200 | 2.6 | | | | | |
| * - | | | | | | |

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PARTICLE SIZE DISTRIBUTION TEST REPORT



Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|--|---|---------------------|
| 4" | | | | Sample No.: | RB-4, S-4 | |
| 2 1/2" | | | | Lab No.: | A08-324-25 | |
| 2" | | | | Source/Location: | 20'-22' | |
| 1 1/2" | | | | Description: | Br. Yellow of SAND, trace Silt, trace mf Gravel | |
| 1" | | | | | | |
| 3/4" | 100.0 | | | | | |
| 5/8" | | | | | | |
| 1/2" | 97.7 | | | sample description in accordance with Burmister System | | |
| 3/8" | 97.7 | | | LL : | PL : | PI : |
| 5/16" | | | | As Received Moisture Content: 18.6 % | | |
| 1/4" | | | | Classification: | | |
| #4 | 96.1 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 91.6 | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 67.8 | | | | | |
| #40 | 48.5 | | | | | |
| #50 | | | | | | |
| #60 | 13.9 | | | | | |
| #100 | 3.4 | | | | | |
| #200 | 1.7 | | | | | |
| | | | | Client: | SGS Environmental Services | |
| | | | | Project: | Roosevelt Field | |
| | | | | Location: | Garden City, New York | |
| | | | | Date: | 26-Sep-08 | |
| | | | | Job No.: | 08-431 | Report No.: 08-3025 |

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Figure No. 26 is a semi-logarithmic graph used for hydrometer analysis. The vertical axis (y-axis) represents "percent finer" and ranges from 0.0 to 100.0 in increments of 10.0. The horizontal axis (x-axis) represents "particle size, millimeters" on a logarithmic scale, ranging from 100.000 to 0.001. The graph includes a grid and labels for sieve sizes (3", 2", 1/2", #10, #50, #200) and soil texture categories (GRAVEL, SAND, SILT, CLAY). The curve shows a sharp drop in percent finer between 0.075 mm and 0.075 mm, indicating a well-sorted sand.

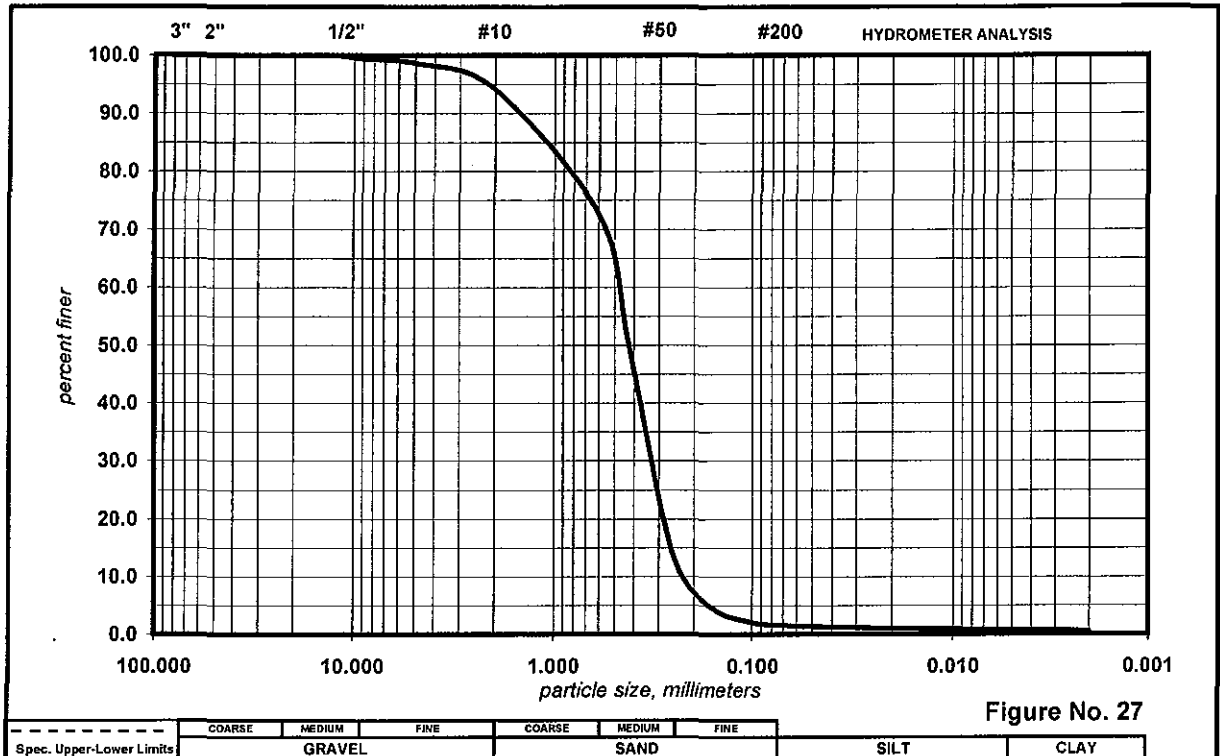
Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|---|--|--|
| 4" | | | | Sample No.: RB-4, S-5 Lab No.: A08-324-26 Source/Location: 25'-27' Description: Br. Yellow cf SAND, trace Silt, little mf Gravel <i>sample description in accordance with Burrmeter System</i> | | |
| 2 1/2" | | | | | | |
| 2" | | | | | | |
| 1 1/2" | | | | | | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | 100.0 | | | | | |
| 3/8" | 98.5 | | | | | |
| 5/16" | | | | | | |
| 1/4" | | | | LL : PL : PI : | | |
| #4 | 95.0 | | | As Received Moisture Content: 18.5 % | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 87.7 | | | | | |
| #14 | | | | Classification: USCS: [SP] AASHTO: | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 70.7 | | | | | |
| #40 | 54.3 | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #50 | | | | | | |
| #60 | 17.8 | | | | | |
| #100 | 5.3 | | | | | |
| #200 | 2.6 | | | Client: SGS Environmental Services Project: Roosevelt Field Location: Garden City, New York Date: 26-Sep-08 Job No.: 08-431 Report No.: 08-3025 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

SOR TESTING LABORATORIES, INC.

98 Sand Park Road - Cedar Grove, NJ 07009
Tel.: (973) 239-6001 Fax: (973) 239-8380 <http://www.sorlabs.com>

PARTICLE SIZE DISTRIBUTION TEST REPORT



Specification*

| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample Identification | | |
|------------|---------|---------|---------|--|---|---------------------|
| 4" | | | | Sample No.: | RB-4, S-6 | |
| 2 1/2" | | | | Lab No.: | A08-324-27 | |
| 2" | | | | Source/Location: | 30'-32' | |
| 1 1/2" | | | | Description: | Lt. Yel. Brown of SAND, trace Silt, trace mf Gravel sample description in accordance with Burmister System | |
| 1" | | | | | | |
| 3/4" | | | | | | |
| 5/8" | | | | | | |
| 1/2" | 100.0 | | | | | |
| 3/8" | 99.5 | | | LL : | PL : | PI : |
| 5/16" | | | | As Received Moisture Content: 26.4 % | | |
| 1/4" | | | | Classification: USCS: [SP] AASHTO: | | |
| #4 | 98.5 | | | | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 94.2 | | | Remarks: Sample received in lab on September 17, 2008 | | |
| #14 | | | | | | |
| #16 | | | | | | |
| #20 | | | | | | |
| #30 | 72.2 | | | | | |
| #40 | 48.9 | | | | | |
| #50 | | | | | | |
| #60 | 13.0 | | | | | |
| #100 | 4.0 | | | Client: | SGS Environmental Services | |
| #200 | 1.6 | | | Project: | Roosevelt Field | |
| | | | | Location: | Garden City, New York | |
| | | | | Date: | 26-Sep-08 | |
| | | | | Job No.: | 08-431 | Report No.: 08-3025 |

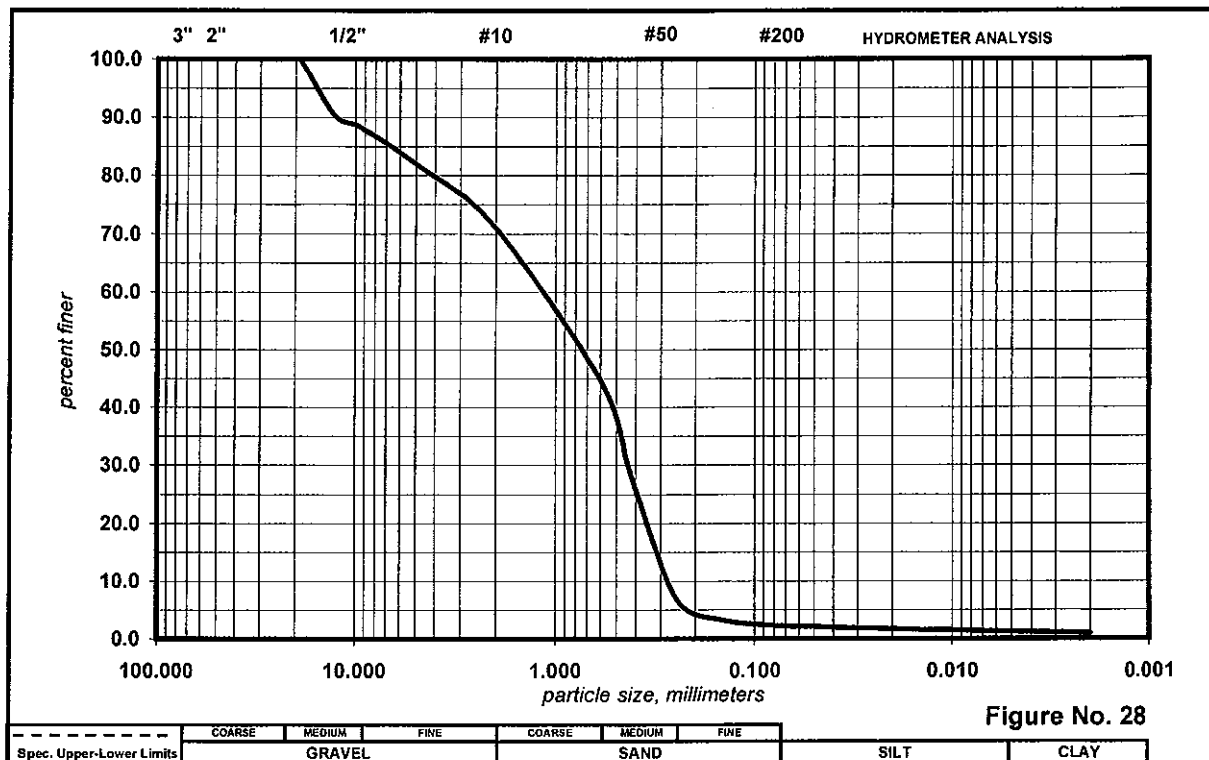
* -

SOR TESTING LABORATORIES, INC.

98 Sand Park Road - Cedar Grove, NJ 07009

Tel.: (973) 239-6001 Fax: (973) 239-8380 <http://www.sorlabs.com>

PARTICLE SIZE DISTRIBUTION TEST REPORT



| Specification* | | | | Sample Identification | | |
|----------------|---------|---------|---------|--|------|------|
| Sieve Size | % Finer | Min.(%) | Max.(%) | Sample No.: RB-4, S-7 | | |
| 4" | | | | Lab No.: A08-324-28 | | |
| 2 1/2" | | | | Source/Location: 35'-37' | | |
| 2" | | | | Description: | | |
| 1 1/2" | | | | Lt. Yel. Brown of SAND, trace Silt, some mf Gravel | | |
| 1" | | | | sample description in accordance with Burmister System | | |
| 3/4" | 100.0 | | | LL : | PL : | PI : |
| 5/8" | | | | As Received Moisture Content: 14.9 % | | |
| 1/2" | 90.3 | | | Classification: | | |
| 3/8" | 88.4 | | | USCS: [SP] | | |
| 5/16" | | | | AASHTO: | | |
| 1/4" | | | | Remarks: | | |
| #4 | 81.5 | | | Sample received in lab on September 17, 2008 | | |
| #6 | | | | | | |
| #8 | | | | | | |
| #10 | 71.0 | | | Client: SGS Environmental Services | | |
| #14 | | | | Project: Roosevelt Field | | |
| #16 | | | | Location: Garden City, New York | | |
| #20 | | | | Date: 26-Sep-08 | | |
| #30 | 44.3 | | | Job No.: 08-431 | | |
| #40 | 27.8 | | | Report No.: 08-3025 | | |
| #50 | | | | | | |
| #60 | 7.0 | | | | | |
| #100 | 3.3 | | | | | |
| #200 | 2.2 | | | | | |
| * - | | | | | | |

ATTACHMENT C

TABLES

**Environmental Protection Agency
Roosevelt Field
Garden City, New York**

Table 2A
Detailed Infiltration Rates for Nassau County Recharge Basin #124

| Cross Section | Basin Water Head ft | Infiltration Rate (per foot) ft ² /sec | Approximate Length ⁽¹⁾ ft | Total Infiltration Rate of Basin ⁽²⁾ gal/min ⁽³⁾ |
|---------------|------------------------|--|---|---|
| A-A' | 0 | 1.4574E-02 | 285 | 1864.13 |
| | 1 | 1.6438E-02 | 285 | 2102.55 |
| | 3 | 1.9391E-02 | 285 | 2480.26 |
| | | | | |
| B-B' | 0 | 1.13650E-02 | 409 | 2086.15 |
| | 1 | 1.30720E-02 | 409 | 2399.49 |
| | 3 | 1.50030E-02 | 409 | 2753.94 |

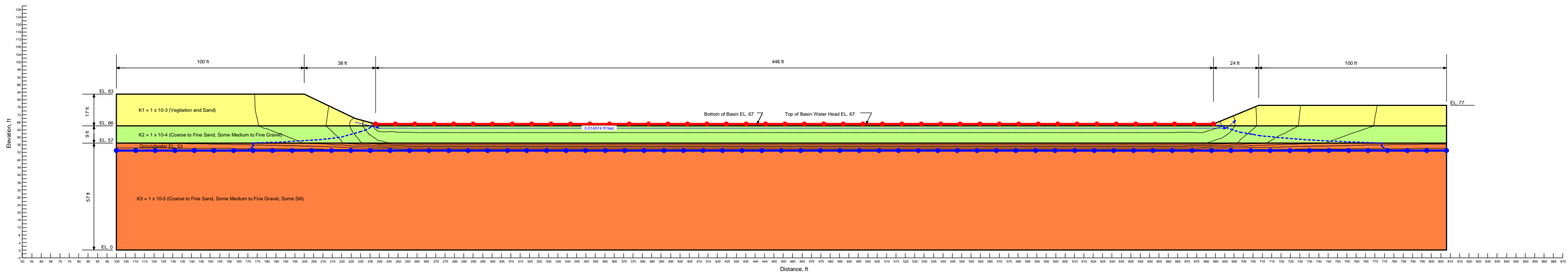
Notes:

- 1 Approximate length = the average length of the bottom of basin perpendicular to the respective cross section
- 2 Total Infiltration Rate of Basin = Infiltration Rate (ft²/sec) x Approximate Length (ft)
- 3 gal/min = ft³/sec x 448.8

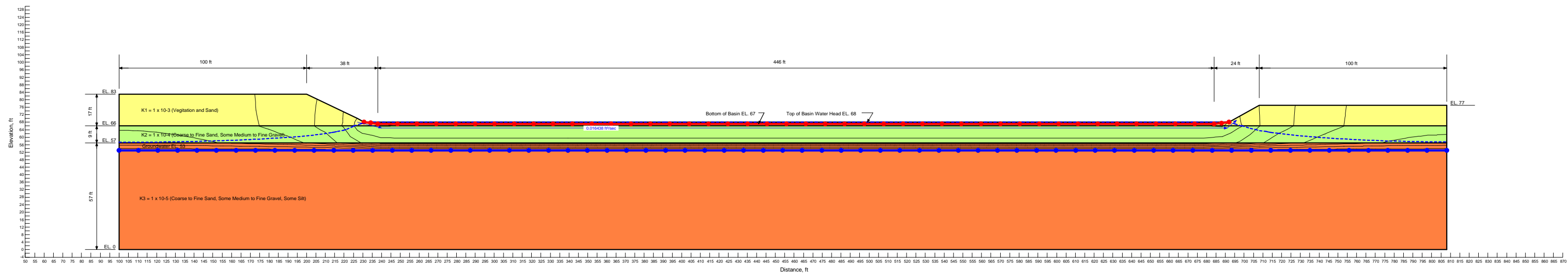
ATTACHMENT D

SEEP-W RESULTS

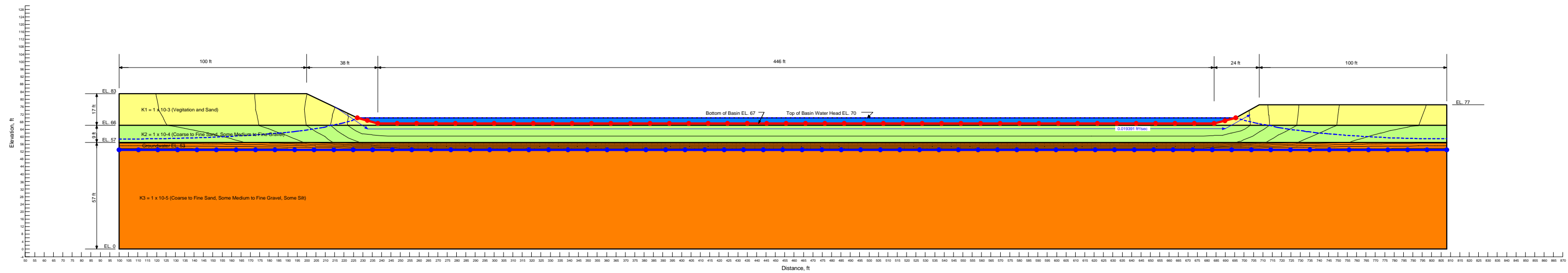
Roosevelt Field
Recharge Basin #124
Section A-A'
Basin Head = 0'



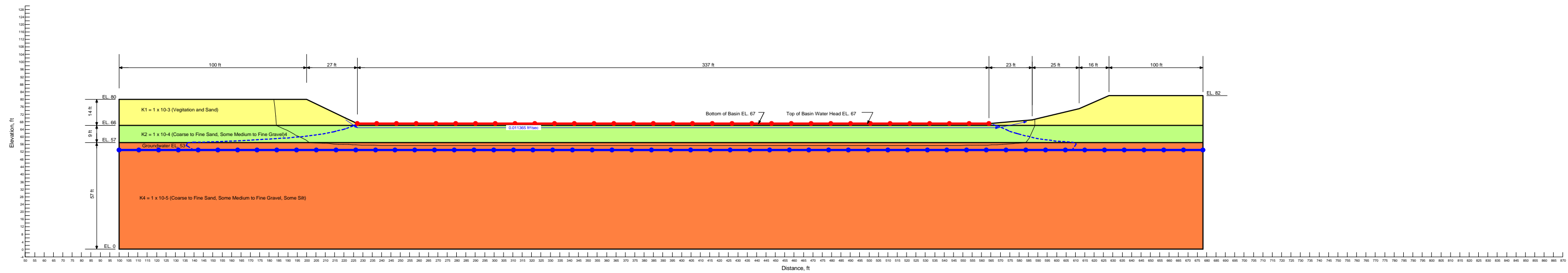
Roosevelt Field
Recharge Basin #124
Section A-A'
Basin Head = 1'



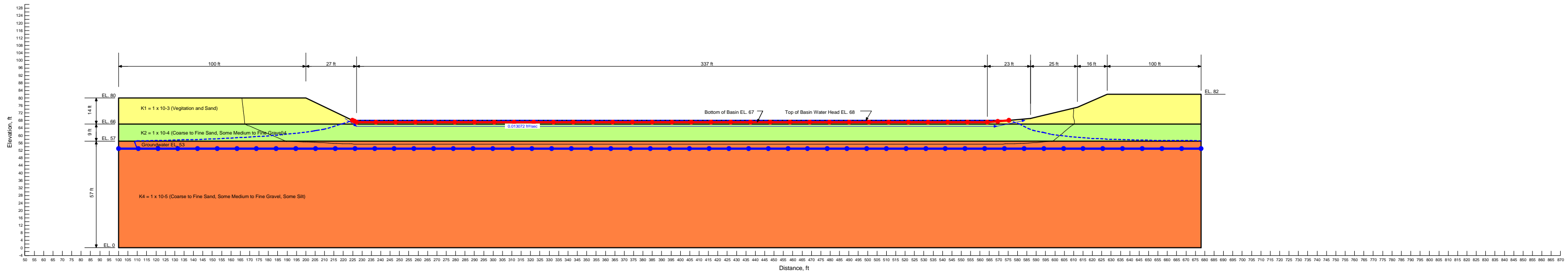
Roosevelt Field
Recharge Basin #124
Section A-A'
Basin Head = 3'



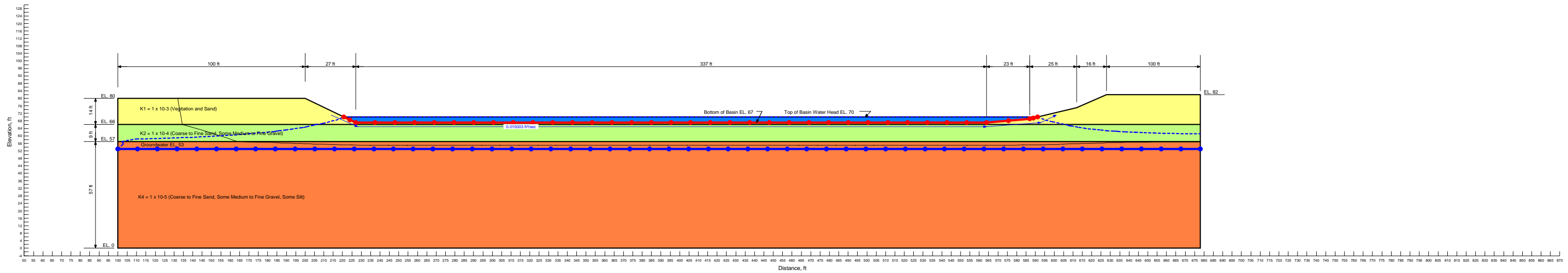
Roosevelt Field
Recharge Basin #124
Section B-B'
Basin Head = 0'



Roosevelt Field
Recharge Basin #124
Section B-B'
Basin Head = 1'



Roosevelt Field
Recharge Basin #124
Section B-B'
Basin Head = 3'



Appendix C

Permits

Edward P. Mangano
County Executive



Shila Shah-Gavnoudias, P.E.
Commissioner

County of Nassau
Department of Public Works
1194 Prospect Avenue, Westbury, NY 11590-2723

NASSAU COUNTY ROAD OPENING / RIGHT OF WAY PERMIT

Issued Date: 2/18/15
Expiration Date: 5/19/15

Permit Number: R15-116633-M

Permittee: USEPA - ARROWHEAD CONTRACTING
251 CLINTON RD GARDEN CITY 11530
913-461-3805

Contractor: HEMLOCK DIRECTIONAL BORING

Contractor Phone Number: 860-482-7509

Is here by Authorized to do work at: STEWART AVE GARDEN CITY

Location of Work:

Side of the Street: NORTH TO SOUTH
Distance from Cross St: 340 FT
Direction from Cross St: EAST TO WEST
Cross Street: RAYMOND COURT

For Purpose of: DIRECTIONAL BORE INSTALL GROUNDWATER CONVEYANCE PIPE

239F

Notes NO PLANS PROVIDED

Amount of Deposit:

Deposit Type:

Refund Deposit to:

Inspector: BMUNSON

- 1) The permittee acknowledges that this permit does not relieve him/her from obtaining any and all other permits or permissions, or following any and all rules or regulations that may be required by any federal, state, county, town, city, or village agency, department, or division; or other public or private parties; and that this permit does not supersede any of the above.
- 2) The permittee expressly warrants that by commencing work, any and all other required permits and permissions have been obtained and are being complied with; and that the requirements of any and all applicable rules and regulations have been and are being met.
- 3) Failure to comply with all of the above terms and conditions may result in the suspension or revocation of this permit, and the county may direct the permittee to restore the work area to the pre-permit condition at his/her expense.
- 4) If the work under this permit has not started within 30 days from the date of issue the permit is void unless extended by the county.
- 5) The permittee is responsible for maintaining openings at all times and to complete final restoration within 90 days of start of work.
- 6) Two-way traffic and pedestrian walkways to be provided during working hours. NC standard specifications apply. Work Hours Mon-Fri 9AM-4PM. Any missing/displaced or damaged concrete must be replaced. Must use NC approved concrete/asphalt plant. No hand mixers.

48 Hours Notice to Schedule Work. Call 516-571-6840 Office of Contracts and Permits.

*** See Attached For Other Conditions ***

New York State Department of Environmental Conservation

Division of Water

Bureau of Water Permits

625 Broadway, 4th Floor

Albany, New York 12233-3505

Phone: (518) 402-8112 • FAX: (518) 402-9029

Website: www.dec.state.ny.us



Alexander B.
Grannis
Commissioner

MEMORANDUM

TO: John Swartwout, Section C, DER
FROM: Paul Kolakowski, BWP, DOW
SUBJECT: Old Roosevelt Field, Site 1-30-051 - REVISED
DATE: June 2, 2010

In response to your request dated September 15, 2009 and supplemented by the March 11, 2010 letter (addressing upgradient iron sampling), attached please find effluent criteria for the above noted groundwater remediation discharge.

The DOW does not have any regulatory authority over a discharge from a State, PRP, or Federal Superfund Site. DER will be responsible for ensuring compliance with the attached effluent criteria and approval of all engineering submissions. Footnote 1 identifies the Bureau of Site Control as the place to send all effluent results, engineering submissions and modification requests. The Regional Water Engineer should be kept apprised of the status of this discharge and, in accordance with the attached criteria, receive a copy of the effluent results for informational purposes.

If you have any questions, please call me at 2-8104.

Attachments (Effluent Criteria, General Conditions)

cc: Bill Spitz, Regional Water Engineer, R-1 (w/Effluent Criteria)
J. Occidental, DOW (w/Effluent Criteria)

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning October 20, 2009

and lasting until October 19, 2014

the discharges from the treatment facility to Groundwater , Class GA shall be limited and monitored by the operator as specified below:

| Outfall Number and Parameter | Discharge Limitations | | Units | Minimum Monitoring Requirements | |
|--|-----------------------|----------------------|-------|---------------------------------|-------------|
| | Daily Avg. | Daily Max | | Measurement Frequency | Sample Type |
| Outfall 001 - Treated Groundwater Remediation Discharge to Groundwater, Class GA | | | | | |
| Flow | Monitor ¹ | Monitor ¹ | GPD | Continuous | Recorder |
| pH (range) | 6.5 to 8.5 | | SU | Daily | Grab |
| Total Suspended Solids | Monitor | 50 | mg./l | Monthly | Grab |
| Total Dissolved Solids | Monitor | 1000 | mg./l | Monthly | Grab |
| Oil & Grease | Monitor | 15 | mg./l | 2/Month | Grab |
| Nitrate + Nitrite (as N) | Monitor | 20 | mg./l | Monthly | Grab |
| Chromium, Total | Monitor | 100 | µg/l | Monthly | Grab |
| Copper, Total | Monitor | 1000 | µg/l | Quarterly | Grab |
| Cyanide, Total | Monitor | 400 | µg/l | Quarterly | Grab |
| Iron, Total - NET | Monitor | 600 ² | µg/l | Monthly | Grab |
| Lead, Total | Monitor | 50 | µg/l | Monthly | Grab |
| Manganese - NET | Monitor | Monitor ² | ug/l | Monthly | Grab |

Superscripts refer to the footnotes

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

| Outfall Number and Parameter | Discharge Limitations | | Units | Minimum Monitoring Requirements | |
|--------------------------------|-----------------------|-----------|-------|---------------------------------|-------------|
| | Daily Avg. | Daily Max | | Measurement Frequency | Sample Type |
| Outfall 001 - cont'd: | | | | | |
| Mercury, Total | Monitor | 1.4 | µg/l | Quarterly | Grab |
| Silver, Total | Monitor | 100 | µg/l | Quarterly | Grab |
| Zinc, Total | Monitor | 5000 | µg/l | Quarterly | Grab |
| | | | | | |
| Dichlorodifluoromethane | Monitor | 5.0 | µg/l | 2/Month | Grab |
| 1,1-Dichloroethene | Monitor | 5.0 | µg/l | 2/Month | Grab |
| cis-1,2-Dichloroethylene | Monitor | 5.0 | µg/l | 2/Month | Grab |
| trans-1,2-Dichloroethylene | Monitor | 5.0 | µg/l | 2/Month | Grab |
| trichlorofluoromethane | Monitor | 5.0 | µg/l | 2/Month | Grab |
| Methyl tert-Butyl Ether (MTBE) | Monitor | Monitor | µg/l | 2/Month | Grab |
| | | | | | |
| 1,1,1-Trichloroethane | Monitor | 5.0 | µg/l | 2/Month | Grab |
| Tetrachloroethylene (PCE) | Monitor | 5.0 | µg/l | 2/Month | Grab |
| Trichloroethylene (TCE) | Monitor | 5.0 | µg/l | 2/Month | Grab |

Superscripts refer to the footnotes

*

Footnotes:

- (1) The discharge rate may not exceed the effective treatment system design capacity.
- (2) The sum of iron and manganese shall not exceed 1000 µg/l. NET limit applies and shall be calculated as effluent concentration minus the upgradient wells average concentration. The upgradient wells average concentration will be calculated based on the quarterly groundwater samples data collected from multiport wells SVP4, SVP-5 and SVP-10, and monitoring well GWX-10019.

Additional Conditions:

- (1) Discharge is not authorized until such time as an engineering submission showing the method of treatment is approved by the Department. The discharge rate may not exceed the effective or design treatment system capacity. All monitoring data, engineering submissions and modification requests must be submitted to:

Chief, Section C
Remedial Bureau A
Division of Environmental Remediation

NYSDEC
625 Broadway
Albany, NY 12233-7015

With a copy sent to:

Bill Spitz, RWE, R-1
NYSDEC
Building 40 - SUNY @ Stony Brook
Stony Brook, NY 11790 - 2356

- (2) Only site generated wastewater is authorized for treatment and discharge.
- (3) Authorization to discharge is valid only for the period noted above but may be renewed if appropriate. A request for renewal must be received 6 months prior to the expiration date to allow for a review of monitoring data and reassessment of monitoring requirements.
- (4) Both concentration (mg/l or µg/l) and mass loadings (lbs/day) must be reported to the Department for all parameters except flow and pH.
- (5) Any use of corrosion/scale inhibitors or biocidal-type compounds used in the treatment process must be approved by the department prior to use.
- (6) This discharge and administration of this discharge must comply with the attached General Conditions.
- (7) Samples and measurements, to comply with the monitoring requirements specified above, shall be taken from the final treated effluent prior to discharge to Groundwater, Class GA.

INCORPORATED
VILLAGE OF GARDEN CITY

351 STEWART AVENUE
GARDEN CITY, NEW YORK 11530

TELEPHONE 516-465-4000

FAX 516- 742-5377



February 24, 2010

Mr. Jeff Sperling
BNB Design, Lic.
20609 Cricket Lane
Lenexa, KS, 66220

Re: Old Roosevelt Superfund Treatment Building – Clinton Road Well Site

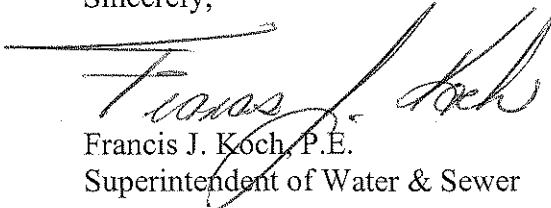
Dear Mr. Sperling:

As per our conversation, you are not required to submit plans to the Village Architect Review Board for the USEPA Superfund treatment system building.

However, the Village is requesting a rendering or an example of a similar building for general approval. Thank you for your cooperation. I hope this expedites the construction schedule. Please forward any correspondence to my attention.

Of course if you have any questions or additional comments do not hesitate to call me.

Sincerely,


Francis J. Koch, P.E.
Superintendent of Water & Sewer

cc: Mr. Robert L. Schoelle, Jr.
Mr. Robert J. Mangan, P.E.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County Nassau Well No. N-13873

PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|--|------------------------------------|----------------------------------|------------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City, NY</u> | | | |
| DEPTH <u>275</u> Ft. | DIAMETER CASINGS <u>16 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>Sub</u> |
| PURPOSE <u>Remedial Extraction</u> | | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD 10395</u> | |
| WATER SUPPLY UNIT (Engineer-In-Charge) | | DATE <u>APR 27 2010</u> | |

EW-01S **DUPLICATE REPORT** **APPROVAL TO SINK WELL**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County Nassau Well No. N-13872

PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|---|------------------------------------|----------------------------------|------------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City NY</u> | | | |
| DEPTH <u>345</u> Ft. | DIAMETER CASINGS <u>16 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>Sub</u> |
| PURPOSE <u>Remedial Extraction</u> | | DATE <u>4-21</u> | LIST OF EXISTING WELLS |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD 10395</u> | |
| WATER SUPPLY UNIT (Engineer-In-Charge) | | DATE <u>APR 27 2010</u> | |

EW-01I **DUPLICATE REPORT** **APPROVAL TO SINK WELL**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County Nassau Well No. N-13871

PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|--|------------------------------------|----------------------------------|------------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway Floor 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City, NY</u> | | | |
| DEPTH <u>415</u> Ft. | DIAMETER CASINGS <u>16 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>Sub</u> |
| PURPOSE <u>Remedial Extraction</u> | | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD 10395</u> | |
| WATER SUPPLY UNIT (Engineer-In-Charge) | | DATE <u>APR 27 2010</u> | |

EW-01D **DUPLICATE REPORT** **APPROVAL TO SINK WELL**

County NassauWell No. N-13868

MW-01S PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|---|----------------------------------|------------------------------------|--------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Road Garden City NY</u> | | | |
| DEPTH <u>160</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>---</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) <u>[Signature]</u> | | DATE <u>APR 27 2010</u> | |

DUPLICATE REPORT

APPROVAL TO SINK WELL

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell No. N-13865

MW-01I PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|---|----------------------------------|------------------------------------|--------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City NY</u> | | | |
| DEPTH <u>230</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>---</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) <u>[Signature]</u> | | DATE <u>APR 27 2010</u> | |

DUPLICATE REPORT

APPROVAL TO SINK WELL

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell No. N-13866

MW-02S PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|---|----------------------------------|------------------------------------|--------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City NY</u> | | | |
| DEPTH <u>160</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>---</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) <u>[Signature]</u> | | DATE <u>APR 27 2010</u> | |

DUPLICATE REPORT

APPROVAL TO SINK WELL

County NassauWell No. N-13869**MW-02I PRELIMINARY REPORT ON PROPOSED WELL**

| | | | |
|--|-------------------------------|---------------------------------|---------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Road Garden City, NY</u> | | | |
| DEPTH <u>230</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>—</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | | DATE |

ORIGINAL REPORT

County NassauWell No. N-13867**MW-03S PRELIMINARY REPORT ON PROPOSED WELL**

| | | | |
|---|-------------------------------|---------------------------------|-------------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Road Garden City NY</u> | | | |
| DEPTH <u>160</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>—</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | | DATE <u>APR 29 2010</u> |

DUPLICATE REPORT

APPROVAL TO SINK WELL

County NassauWell No. N-13870**MW-03I PRELIMINARY REPORT ON PROPOSED WELL**

| | | | |
|---|-------------------------------|---------------------------------|-------------------------|
| OWNER <u>USEPA Region 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>Roosevelt Field Mall</u> <u>640 Old Country Rd Garden City NY</u> | | | |
| DEPTH <u>230</u> Ft. | DIAMETER CASINGS <u>4</u> In. | PUMP CAPACITY <u>N/A</u> G.P.M. | TYPE <u>—</u> |
| PURPOSE <u>Monitoring</u> | DATE <u>4-21-10</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | | DATE <u>APR 29 2010</u> |

DUPLICATE REPORT

APPROVAL TO SINK WELL

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell No. N 14084

CDM PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|---|---------------------------------------|------------------------------------|--------------------|
| OWNER <u>USEPA REGION 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>510 Stewart Ave Garden City, NY 11530</u> | | | |
| DEPTH <u>550</u> Ft. | DIAMETER CASINGS <u>12 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>SUB</u> |
| PURPOSE <u>Remedial Extraction</u> | DATE <u>10/31/12</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | DATE <u>NOV 15 2012</u> | |

SEW-01D

TRIPLICATE REPORT Job 28903

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell No. N 14085

CDM PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
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| OWNER <u>USEPA REGION 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>510 Stewart Ave</u> | | | |
| DEPTH <u>480</u> Ft. | DIAMETER CASINGS <u>12 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>SUB</u> |
| PURPOSE <u>Remedial Extraction</u> | DATE <u>10/31/12</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER <u>NYRD10395</u> | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | DATE <u>NOV 15 2012</u> | |

SEW-01I

TRIPLICATE REPORT Job 28903

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell No. N 14086

CDM PRELIMINARY REPORT ON PROPOSED WELL

| | | | |
|--|---------------------------------------|-----------------------------------|--------------------|
| OWNER <u>USEPA REGION 2</u> | | | |
| MAILING ADDRESS <u>290 Broadway FL 26 NY NY 10007</u> | | | |
| WELL LOCATION <u>510 Stewart Ave</u> | | | |
| DEPTH <u>415</u> Ft. | DIAMETER CASINGS <u>12 x 8</u> In. | PUMP CAPACITY <u>80</u> G.P.M. | TYPE <u>SUB</u> |
| PURPOSE <u>Remedial Extraction</u> | DATE <u>10/31/12</u> | LIST OF EXISTING WELLS | |
| DRILLER'S SIGNATURE <u>Karl Hitzelberger</u> | | LICENSE NUMBER | |
| WATER SUPPLY UNIT (Engineer-in-Charge) | | DATE <u>NOV 15 2012</u> | |

SEW-01S

TRIPLICATE REPORT Job 28903

EDWARD P. MANGANO
COUNTY EXECUTIVE



SHILA SHAH-GAVNOUDIAS
COMMISSIONER

NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS
170 CANTIAGUE ROCK ROAD
HICKSVILLE, NEW YORK 11801

FAX NO.: 516-571-6845

TO: Joe Cotter

FAX NO.: 913-814-9997

FROM: Kris PHONE NO.: _____

COMMENTS: _____

2 Page(s) Transmitted (Including Cover Sheet)

IF YOU DID NOT RECEIVE THE PAGES TRANSMITTED,
PLEASE CONTACT
516-571-6840 IMMEDIATELY!

**NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS
(ROAD OPENING ACT, NASSAU COUNTY)**

TEL NO. (913) 814-9994

PERMIT

ISSUED DATE: 05/27/11

PERMIT NO: 11-0067737-000-R

PERMITTEE: ARROWHEAD CONTRACTING

REF NO:

10981 ELCHEE LEXA, KS 66219

REFUND DEPOSIT TO:

IS HEREBY AUTHORIZED TO DO WORK AT 251 CLINTON ROAD
E /S 0 FT - 2940 FT S /O OLD COUNTRY ROAD, GARDEN CITY
FOR PURPOSE OF: INSTALL PIPE

NOTES: INSTALL DISCHARGE PIPE

TWO-WAY TRAFFIC AND PEDESTRIAN WALKWAYS TO BE PROVIDED
DURING WORKING HOURS. NO STANDARD SPECIFICATIONS APPLY.
WORK HOURS MON-FRI 7AM-4PM. ANY MISSING/DISPLACED OR
DAMAGED CONCRETE MUST BE REPLACED. MUST USE NC APPROVED
CONCRETE/ASPHALT PLANT. NO HAND MIXERS OFFICE # 516-571-6840

239K:

DEPOSIT NO.

AMOUNT OF BOND

NOTICE BM

- 1) THE PERMITTEE ACKNOWLEDGES THAT THIS PERMIT DOES NOT RELIEVE HIM/HER FROM OBTAINING ANY AND ALL OTHER PERMITS OR PERMISSIONS, OR FOLLOWING ANY AND ALL RULES OR REGULATIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY, TOWN, CITY, OR VILLAGE AGENCY, DEPARTMENT, OR DIVISION; OR OTHER PUBLIC OR PRIVATE PARTIES; AND THAT THIS PERMIT DOES NOT SUPERCEDE ANY OF THE ABOVE.

THE PERMITTEE EXPRESSLY WARRANTS THAT BY COMMENCING WORK, ANY AND ALL OTHER REQUIRED PERMITS AND PERMISSIONS HAVE BEEN OBTAINED AND ARE BEING COMPLIED WITH; AND THAT THE REQUIREMENTS OF ANY AND ALL APPLICABLE RULES AND REGULATIONS HAVE BEEN AND ARE BEING MET.

FAILURE TO COMPLY WITH ALL OF THE ABOVE TERMS AND CONDITIONS MAY RESULT IN THE SUSPENSION OR REVOCATION OF THIS PERMIT, AND THE COUNTY MAY DIRECT THE PERMITTEE TO RESTORE THE WORK AREA TO THE PRE-PERMIT CONDITION AT HIS/HER EXPENSE.

- 2) IF THE WORK UNDER THIS PERMIT HAS NOT STARTED WITHIN 30 DAYS FROM THE DATE OF ISSUE THE PERMIT IS VOID UNLESS EXTENDED BY THE COUNTY.
3) THE PERMITTEE IS RESPONSIBLE FOR MAINTAINING OPENINGS AT ALL TIMES AND TO COMPLETE FINAL RESTORATION WITHIN 90 DAYS OF START OF WORK.
4) THE OFFICE OF HIGHWAYS & GENERAL ENGINEERING IS TO BE NOTIFIED (TEL. NO. 516-571-9601) 48 HOURS IN ADVANCE OF START OF ANY WORK AND ALSO 48 HOURS NOTICE IN ADVANCE OF RESTORATION.

WORK HOURS:**9am-4pm**

*** SEE ATTACHED FOR OTHER CONDITIONS ***

**NASSAU COUNTY
STANDARD SPECIFICATIONS
APPLY**

OFFICE OF THE COMMISSIONER

INSPECTOR'S REPORT

| | |
|-------------------------------|-------------------------------|
| WORK STARTED: / / | WORK FINISHED: / / |
| SIZE OF OPENING: | SIZE OF CUT BACK: |
| CONTRACTOR: SAME AS APPLICANT | TELEPHONE NO.: (000) 000-0000 |
| TEMPORARY PATCH INSTALLED: | DATE COMPLETED: |
| PERMANENT PATCH INSTALLED: | SUPERVISION CHARGE: |
| KIND OF MATERIAL: | ADDITIONAL CHARGE: |
| INSPECTOR'S HOURS: | DATE REFUNDED: |
| REFUND: | |
| REMARKS: | |

INSPECTOR'S SIGNATURE

DATE:

Appendix D

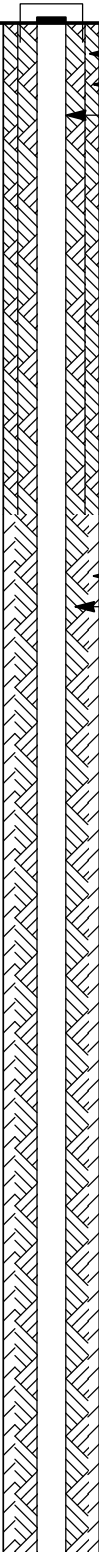
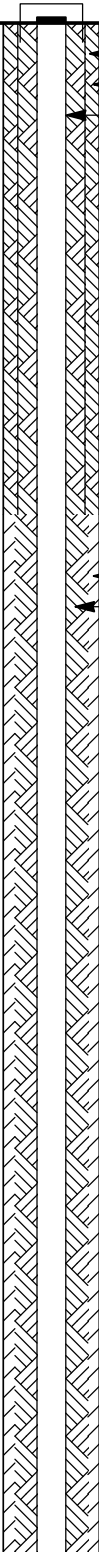
Test Boring and Well Construction Logs and NYSDEC Well Completion Reports

PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

EXTRACTION WELL NO: **EW-1D**

STARTED: 7/6/10 COMPLETED: 7/9/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Reverse Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207568.31 Feet EASTING: 1090288.44 Feet
G.S. ELEVATION: 87 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH: 417.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 5 | | | | |  <p>0 - 80: 16 Inch Diameter Outer Casing 0 - 80: Cement/Bentonite Grout 0 - 350: 8 Inch Diameter Stainless Steel Riser</p> <p>80 - 335: Native Material 80 - 335: Cement/Bentonite Grout</p> |
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| 115 | | | | |  <p>0 - 80: 16 Inch Diameter Outer Casing 0 - 80: Cement/Bentonite Grout 0 - 350: 8 Inch Diameter Stainless Steel Riser</p> <p>80 - 335: Native Material 80 - 335: Cement/Bentonite Grout</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

EXTRACTION WELL
CONSTRUCTION LOG

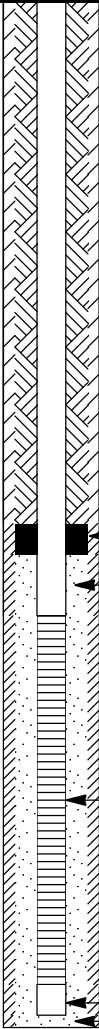
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

EXTRACTION WELL NO:

EW-1D

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 255 | | | | |  <p>335 - 340: #00 Sand and Bentonite Slurry 340 - 415: #0 Filter Sand</p> <p>350 - 410: 8 Inch Diameter 20 Slot Stainless Steel Screen</p> <p>410 - 415: Sump 415 - 417: #0 Filter Sand Backfill</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

EXTRACTION WELL
CONSTRUCTION LOG

PROJECT NO.

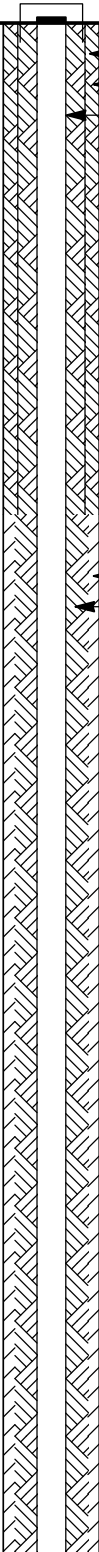
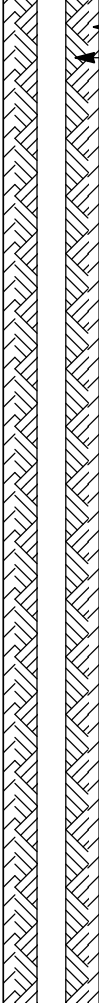
PAGE 2 OF 2

PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

EXTRACTION WELL NO: **EW-11**

STARTED: 7/14/10 COMPLETED: 7/23/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Reverse Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207559.20 Feet EASTING: 1090292.97 Feet
G.S. ELEVATION: 87 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH: 350.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 5 | | | | |  <p>0 - 80: 16 Inch Diameter Outer Casing 0 - 80: Cement/Bentonite Grout 0 - 280: 8 Inch Diameter Stainless Steel Riser</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

EXTRACTION WELL
CONSTRUCTION LOG

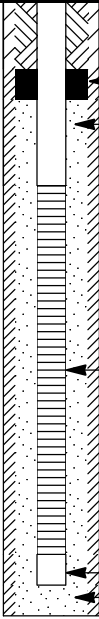
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

EXTRACTION WELL NO:

EW-11

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 255 | | | | |  <p>261 - 266: #00 Sand and Bentonite Slurry 266 - 345: #1 Filter Sand</p> <p>280 - 340: 8 Inch Diameter 20 Slot Stainless Steel Screen</p> <p>340 - 345: Sump 345 - 350: #1 Filter Sand Backfill</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

EXTRACTION WELL CONSTRUCTION LOG

PROJECT NO.

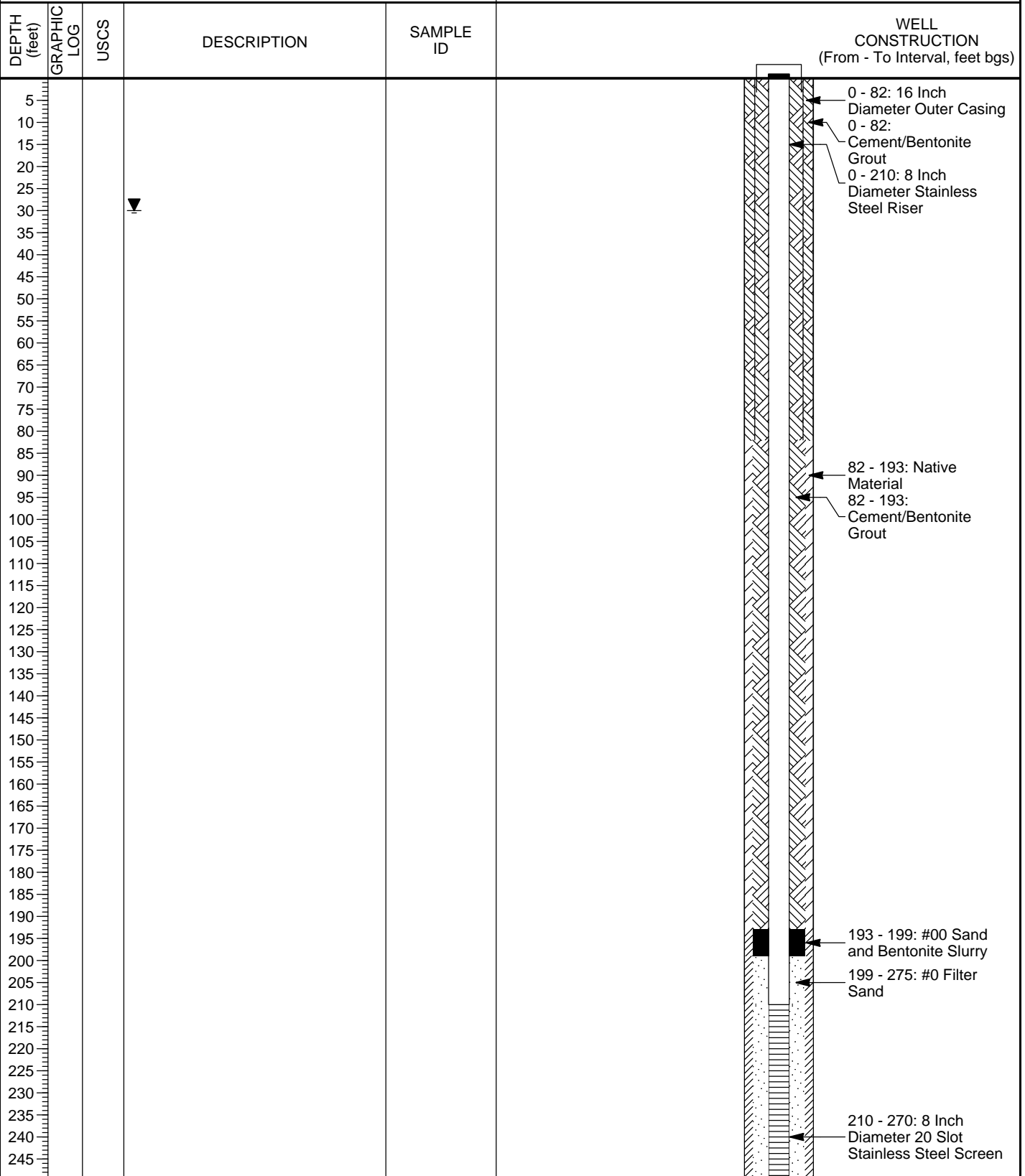
PAGE 2 OF 2

PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

EXTRACTION WELL NO: **EW-1S**

STARTED: 7/29/10 COMPLETED: 8/5/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Reverse Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207549.76 Feet EASTING: 1090297.43 Feet
G.S. ELEVATION: 87 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH:279.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

EXTRACTION WELL
CONSTRUCTION LOG

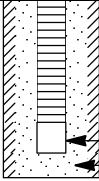
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

EXTRACTION WELL NO:

EW-1S

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 255 | | | | |  <p>270 - 275: Sump 275 - 279: #0 Filter Sand Backfill</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.

110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851EXTRACTION WELL
CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

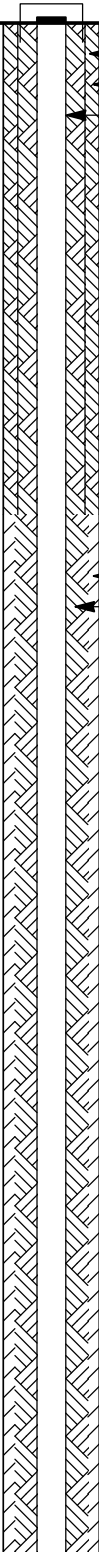
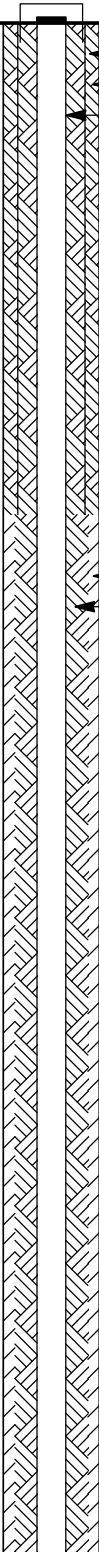
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-011

STARTED: 6/14/10 COMPLETED: 6/16/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207800.71 Feet EASTING: 1090448.55 Feet
G.S. ELEVATION: 85.5 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH: 325.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 5 | | | | |  <p>0 - 80: 8 Inch Diameter Outer Casing 0 - 80: Cement/Bentonite Grout 0 - 305: 4 Inch Diameter Stainless Steel Riser</p> |
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| 105 | | | | | |
| 110 | | | | |  <p>80 - 290: Native Material 80 - 290: Cement/Bentonite Grout</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



110 Fieldcrest Avenue, 6th Floor
Edison, NJ 08837
Telephone: 732-225-7000
Fax: 732-225-7851

MONITORING WELL
CONSTRUCTION LOG

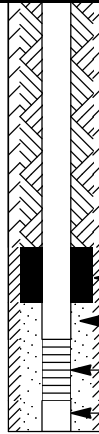
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-011

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 255 | | | | |  <p>290 - 299: #00 Sand and Bentonite Slurry 299 - 315: #1 Filter Sand 305 - 315: 4 Inch Diameter 10 Slot Stainless Steel Screen 315 - 320: Sump</p> |
| 260 | | | | | |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



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MONITORING WELL CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

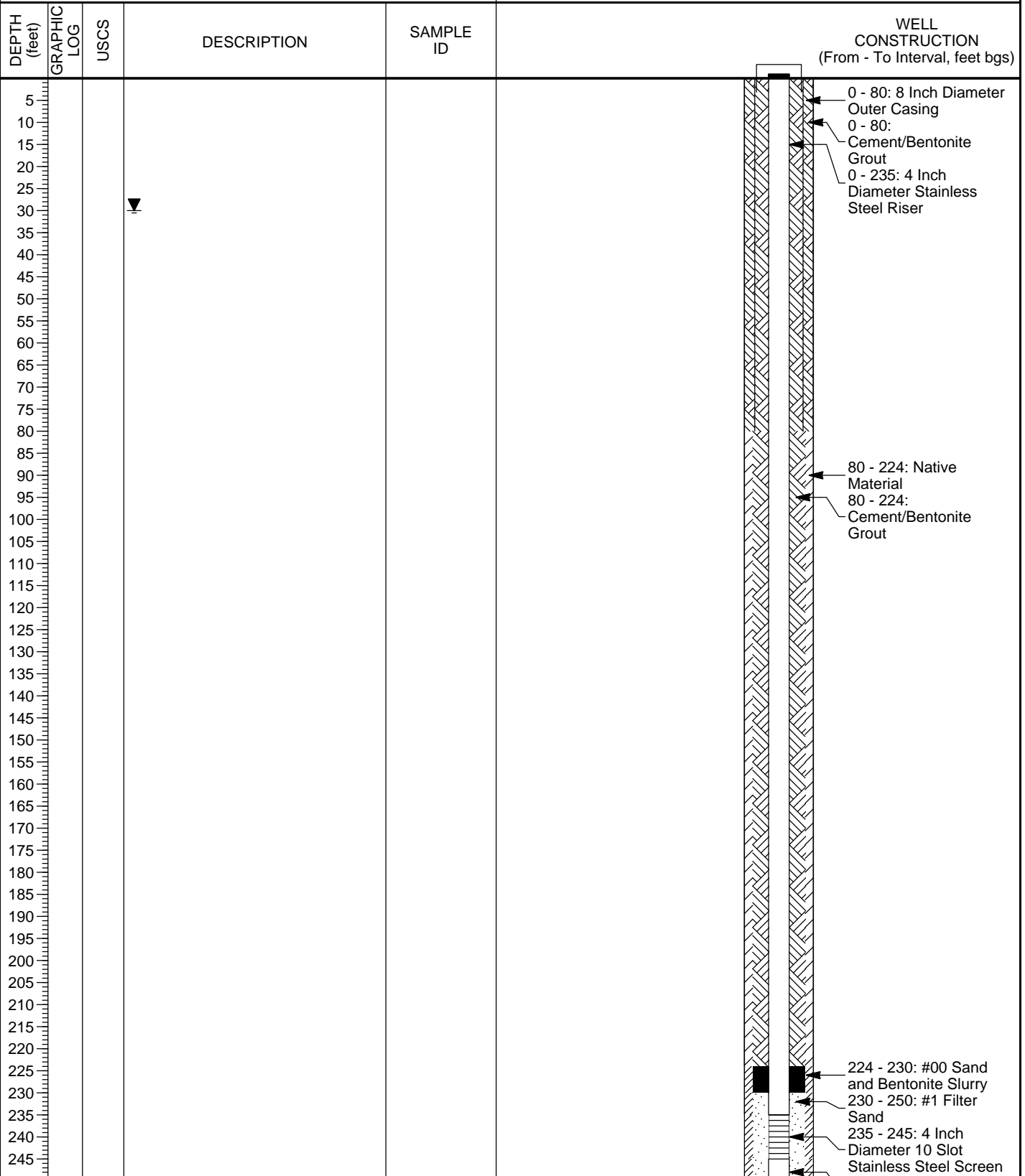
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-01S

STARTED: 6/9/10 COMPLETED: 6/10/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207807.04 Feet EASTING: 1090471.87 Feet
G.S. ELEVATION: 85.5 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH: 255.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG

PROJECT NO.


PAGE 1 OF 2

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-01S

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 255 | | | | |  245 - 250: Sump 250 - 255: #1 Filter Sand Backfill |
| 260 | | | | | |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.

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Telephone: 732-225-7000
Fax: 732-225-7851MONITORING WELL
CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

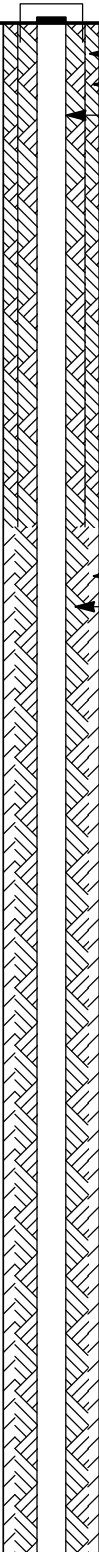
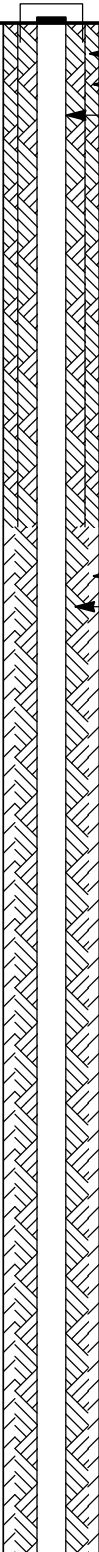
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-021

STARTED: 6/1/10 COMPLETED: 6/3/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207902.55 Feet EASTING: 1090929.46 Feet
G.S. ELEVATION: 86 Feet M.P. ELEV:
WATER: 30 Feet TOTAL DEPTH: 326.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 5 | | | | |  <p>0 - 82: 8 Inch Diameter Outer Casing 0 - 82: Cement/Bentonite Grout 0 - 306: 4 Inch Diameter Stainless Steel Riser</p> |
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| 105 | | | | |  <p>82 - 290: Native Material 82 - 290: Cement/Bentonite Grout</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG

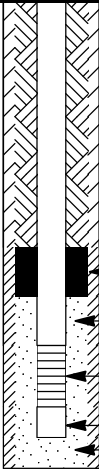
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-02I

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 255 | | | | |  <p>290 - 298: #00 Sand and Bentonite Slurry</p> <p>298 - 321: #1 Filter Sand</p> <p>306 - 316: 4 Inch Diameter 10 Slot Stainless Steel Screen</p> <p>316 - 321: Sump</p> <p>321 - 326: #1 Filter Sand Backfill</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



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MONITORING WELL CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

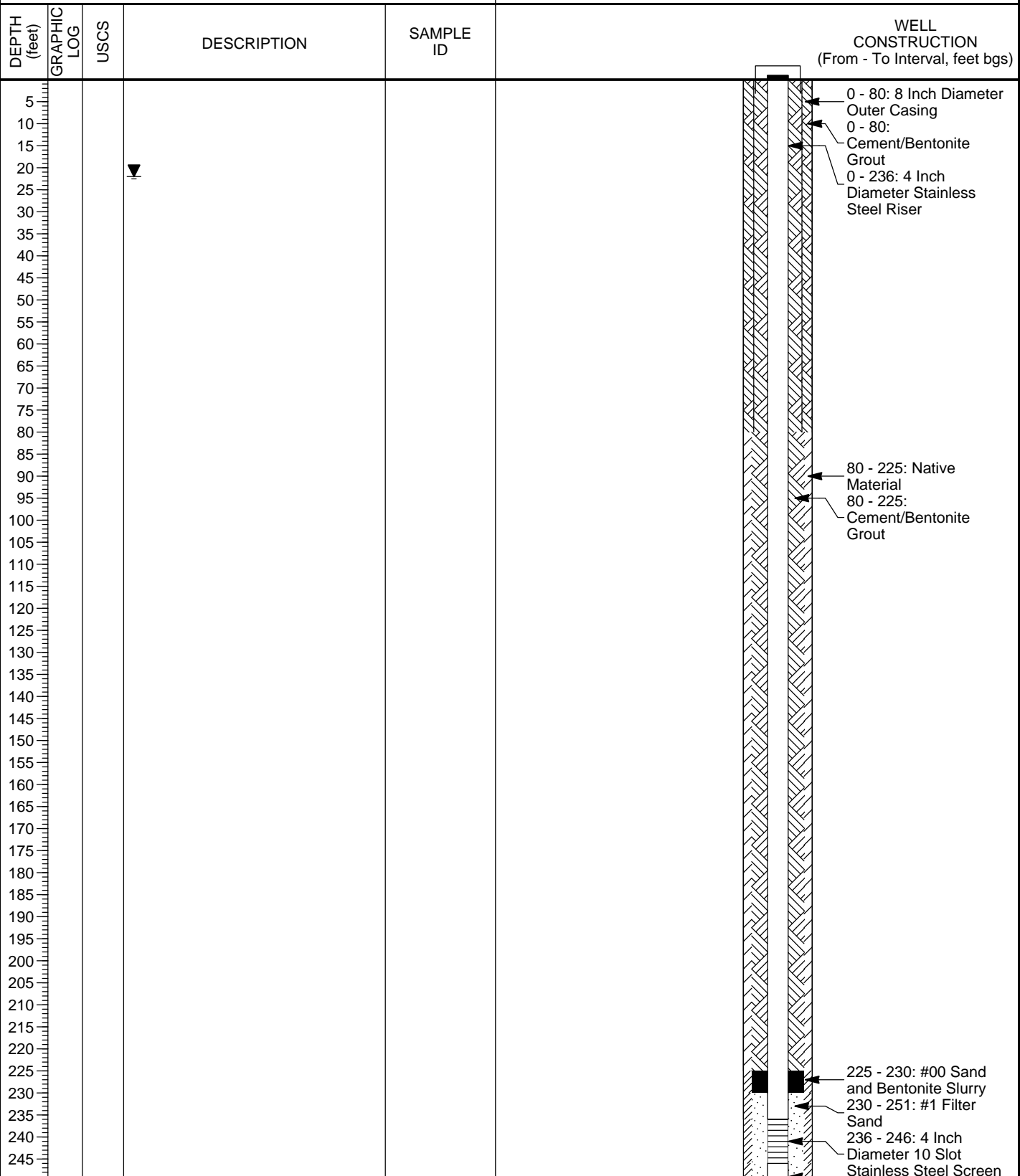
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-02S

STARTED: 5/26/10 COMPLETED: 5/27/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, 1n. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207890.42 Feet EASTING: 1090942.93 Feet
G.S. ELEVATION: 86 Feet M.P. ELEV:
WATER: 22 Feet TOTAL DEPTH:255.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG


PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-02S

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|---|
| 255 | | | | |  <div>246 - 251: Sump 251 - 255: #1 Filter Sand Backfill</div> |
| 260 | | | | | |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.

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CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

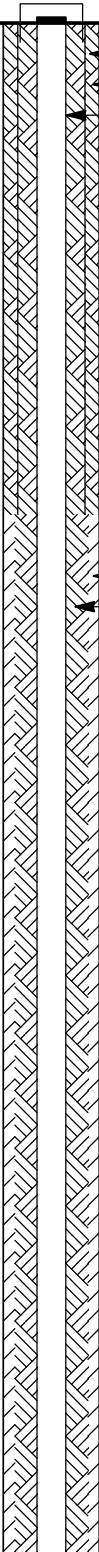
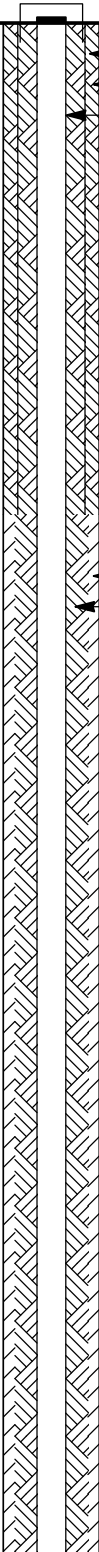
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-031

STARTED: 5/19/10 COMPLETED: 5/21/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207025.43 Feet EASTING: 1092105.45 Feet
G.S. ELEVATION: 84 Feet M.P. ELEV:
WATER: 25 Feet TOTAL DEPTH:322.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 5 | | | | |  <p>0 - 80: 8 Inch Diameter Outer Casing 0 - 80: Cement/Bentonite Grout 0 - 304: 4 Inch Diameter Stainless Steel Riser</p> |
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| 105 | | | | |  <p>80 - 280: Native Material 80 - 280: Cement/Bentonite Grout</p> |
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WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG

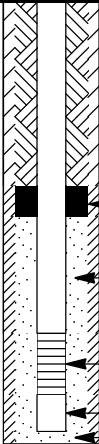
PROJECT NO.

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-03I

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 255 | | | | |  <p>280 - 285: #00 Sand and Bentonite Slurry</p> <p>285 - 320: #1 Filter Sand</p> <p>304 - 314: 4 Inch Diameter 10 Slot Stainless Steel Screen</p> <p>314 - 320: Sump</p> <p>320 - 322: #1 Filter Sand Backfill</p> |
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| 460 | | | | | |
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| 470 | | | | | |
| 475 | | | | | |
| 480 | | | | | |
| 485 | | | | | |
| 490 | | | | | |
| 495 | | | | | |
| 500 | | | | | |
| 505 | | | | | |
| 510 | | | | | |
| 515 | | | | | |
| 520 | | | | | |

WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG

PROJECT NO.

PAGE 2 OF 2

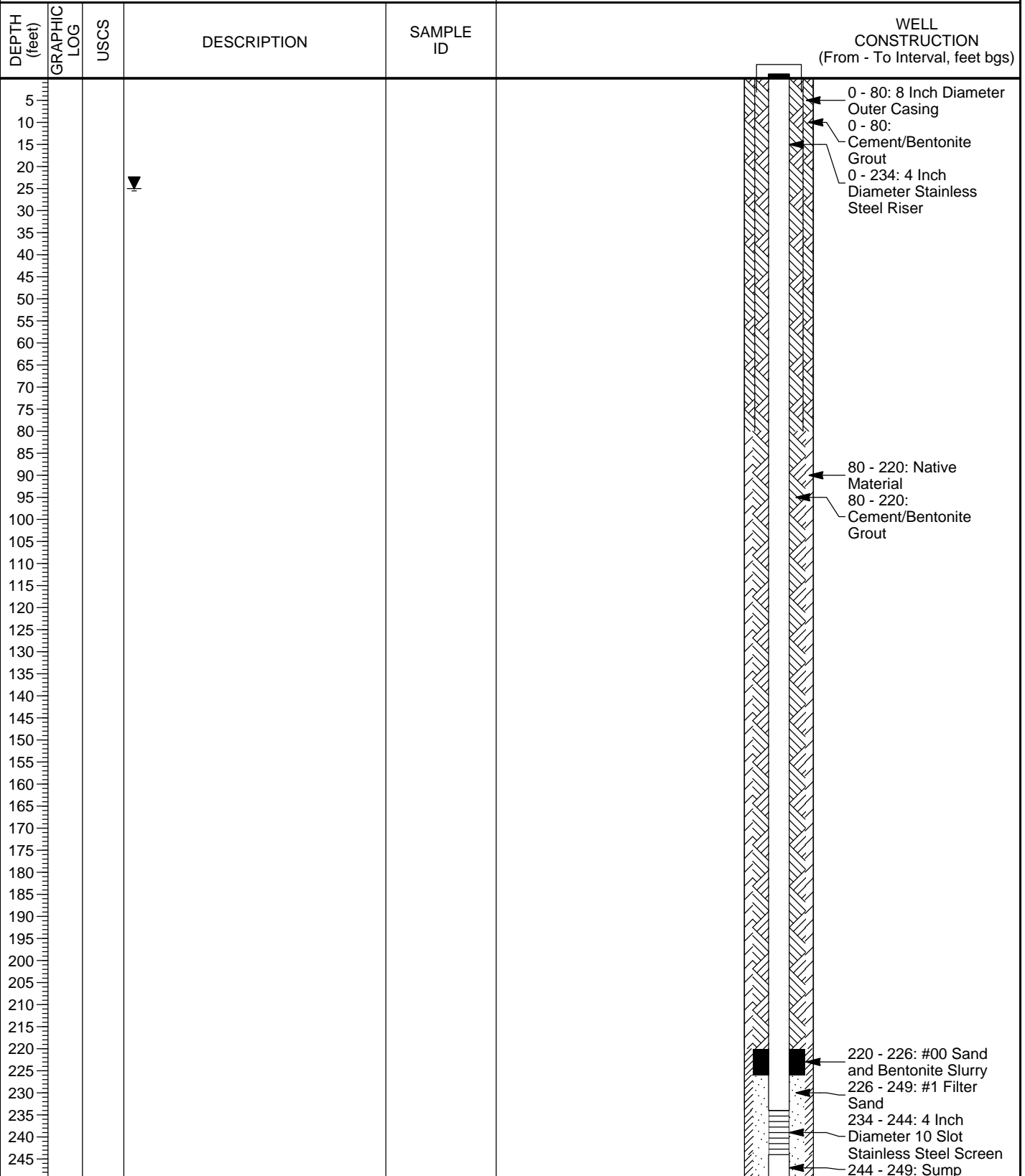
PROJECT: Old Roosevelt Field Contaminated Groundwater Site
LOCATION: Garden City, Suffolk County, New York

MONITORING WELL NO:

MW-03S

STARTED: 5/17/10 COMPLETED: 5/18/10
DRILLING COMPANY: Uni-Tech
DRILLING EQUIPMENT: Failing 1500
DRILLING METHOD: Mud Rotary, In. Dia. Borehole
SAMPLING METHOD:
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 207019.04 Feet EASTING: 1092091.29 Feet
G.S. ELEVATION: 84 Feet M.P. ELEV:
WATER: 25 Feet TOTAL DEPTH:252.0 Feet
LOGGED BY: F. Robinson
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 11/18/10 REV.



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MONITORING WELL
CONSTRUCTION LOG

PROJECT NO.


PAGE 1 OF 2

PROJECT: Old Roosevelt Field Contaminated Groundwater Site

MONITORING WELL NO:

MW-03S

LOCATION: Garden City, Suffolk County, New York

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | SAMPLE ID | WELL CONSTRUCTION (From - To Interval, feet bgs) |
|-----------------|----------------|------|-------------|--------------|--|
| 255 | | | | |  249 - 252: #1 Filter Sand Backfill |
| 260 | | | | | |
| 265 | | | | | |
| 270 | | | | | |
| 275 | | | | | |
| 280 | | | | | |
| 285 | | | | | |
| 290 | | | | | |
| 295 | | | | | |
| 300 | | | | | |
| 305 | | | | | |
| 310 | | | | | |
| 315 | | | | | |
| 320 | | | | | |
| 325 | | | | | |
| 330 | | | | | |
| 335 | | | | | |
| 340 | | | | | |
| 345 | | | | | |
| 350 | | | | | |
| 355 | | | | | |
| 360 | | | | | |
| 365 | | | | | |
| 370 | | | | | |
| 375 | | | | | |
| 380 | | | | | |
| 385 | | | | | |
| 390 | | | | | |
| 395 | | | | | |
| 400 | | | | | |
| 405 | | | | | |
| 410 | | | | | |
| 415 | | | | | |
| 420 | | | | | |
| 425 | | | | | |
| 430 | | | | | |
| 435 | | | | | |
| 440 | | | | | |
| 445 | | | | | |
| 450 | | | | | |
| 455 | | | | | |
| 460 | | | | | |
| 465 | | | | | |
| 470 | | | | | |
| 475 | | | | | |
| 480 | | | | | |
| 485 | | | | | |
| 490 | | | | | |
| 495 | | | | | |
| 500 | | | | | |
| 505 | | | | | |
| 510 | | | | | |
| 515 | | | | | |
| 520 | | | | | |

WELL CONSTRUCTION LOG: STANDARD ROOSEVELT-1.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 11/18/10 REV.

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CONSTRUCTION LOG

PROJECT NO.

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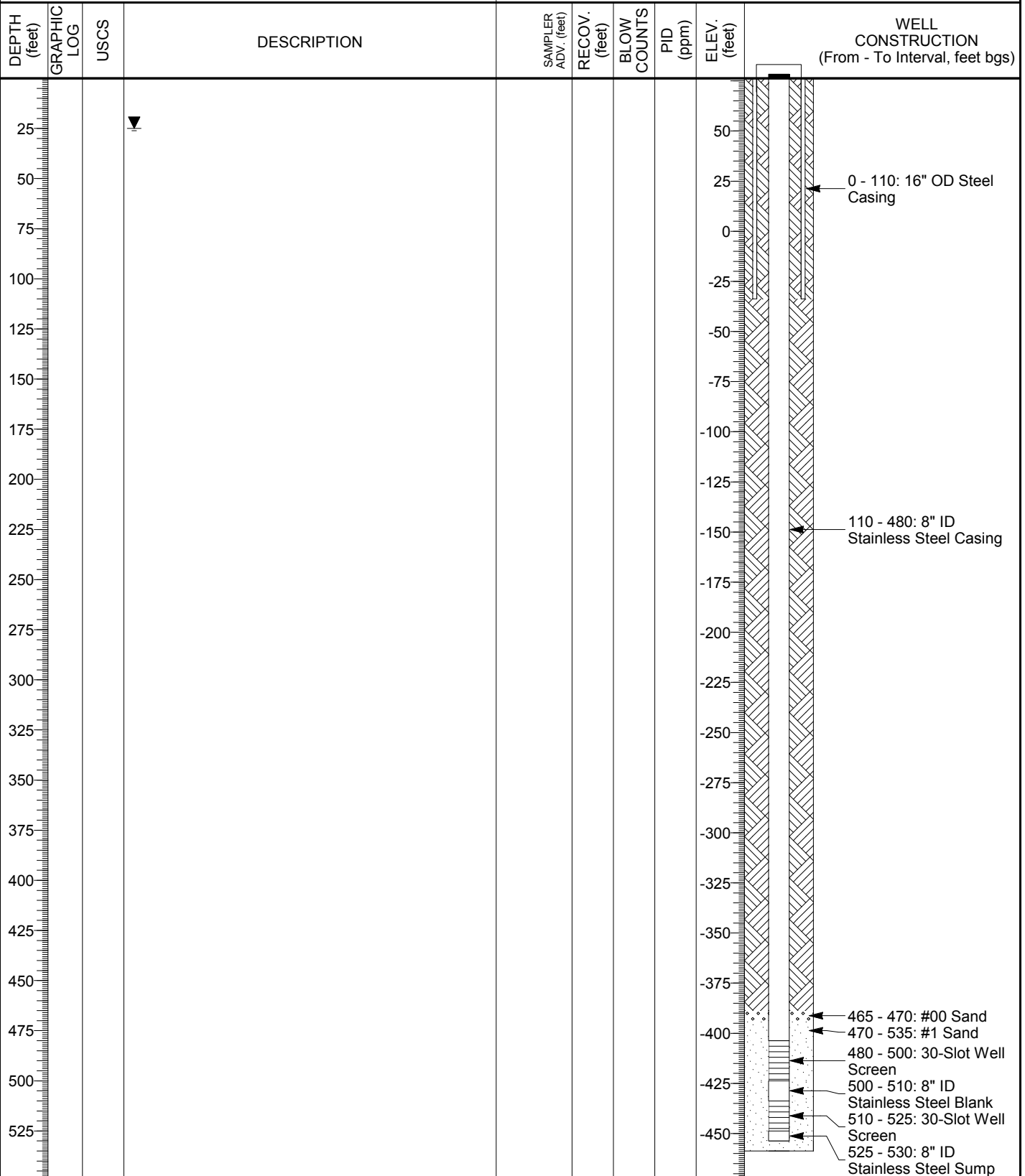
PROJECT: Old Roosevelt Site
LOCATION: Garden City, Nassau County, New York

WELL NO:

SEW-1D

STARTED: 1/14/13 COMPLETED: 1/21/13
DRILLING COMPANY: Uni-Tech Drilling
DRILLING EQUIPMENT: Failing Jed A
DRILLING METHOD: Reverse Circulation, 16-inch diameter
SAMPLING METHOD: NA
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 205339.22 Feet EASTING: 1089995.39 Feet
G.S. ELEVATION: 76.28 Feet M.P. ELEV: TOTAL DEPTH: 535.0 Feet
INITIAL DTW: 25 Feet
LOGGED BY: Mike Ehnot
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



**CDM
Smith**

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WELL
CONSTRUCTION LOG

PROJECT NO.

PAGE 1 OF 1

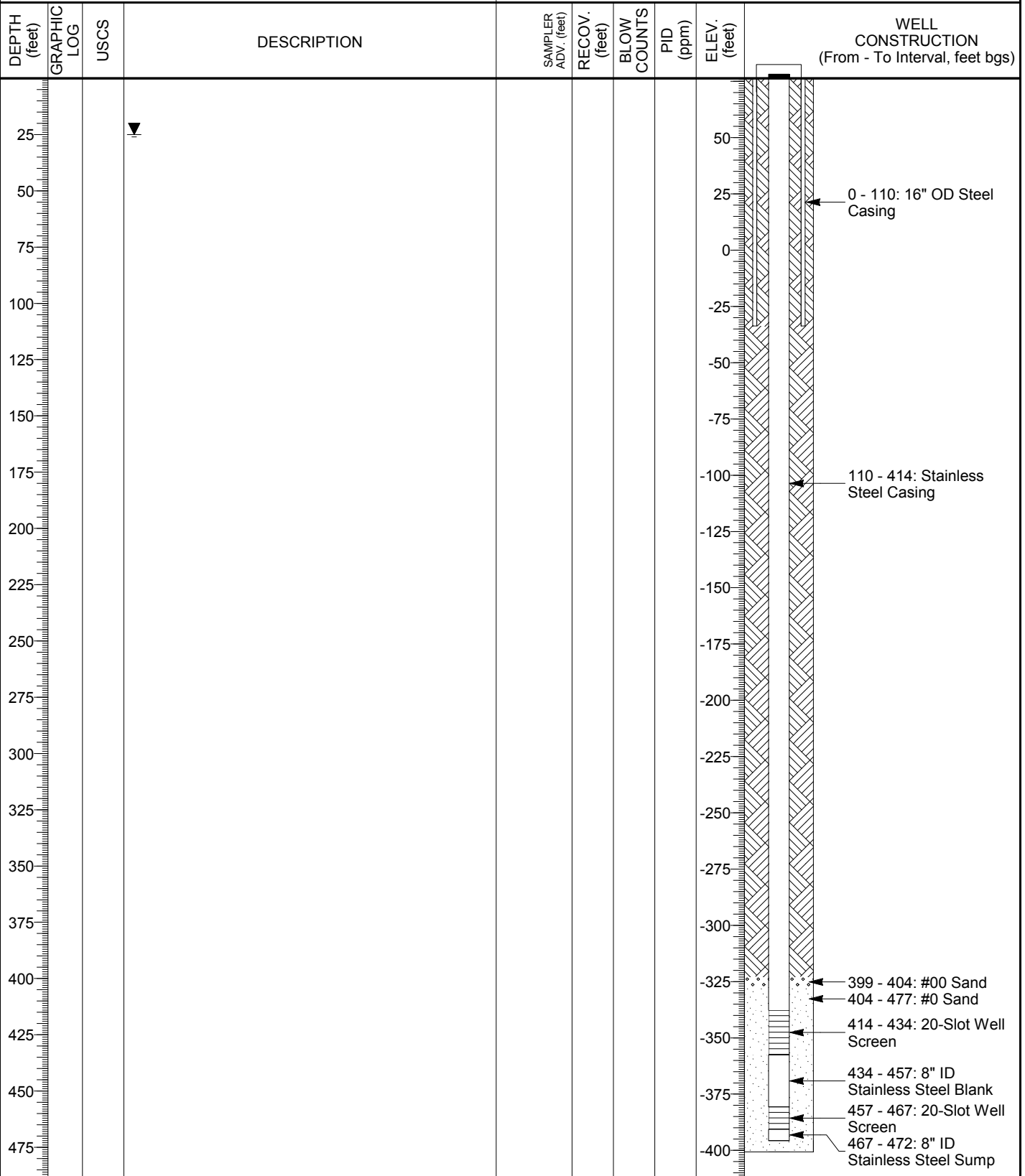
WELL CONSTRUCTION LOG: STANDARD ROOSEVELT_FIELD_04-11-2013_AE.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/11/13 REV.

PROJECT: Old Roosevelt Site
LOCATION: Garden City, Nassau County, New York

WELL NO: **SEW-11**

STARTED: 1/28/13 COMPLETED: 2/4/13
DRILLING COMPANY: Uni-Tech Drilling
DRILLING EQUIPMENT: Failing Jed A
DRILLING METHOD: Reverse Circulation, 16-inch diameter
SAMPLING METHOD: NA
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 205343.90 Feet EASTING: 1090007.84 Feet
G.S. ELEVATION: 76.36 Feet M.P. ELEV: 25 Feet
INITIAL DTW: 25 Feet TOTAL DEPTH: 477.0 Feet
LOGGED BY: Mike Ehnot
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



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WELL
CONSTRUCTION LOG

PROJECT NO.

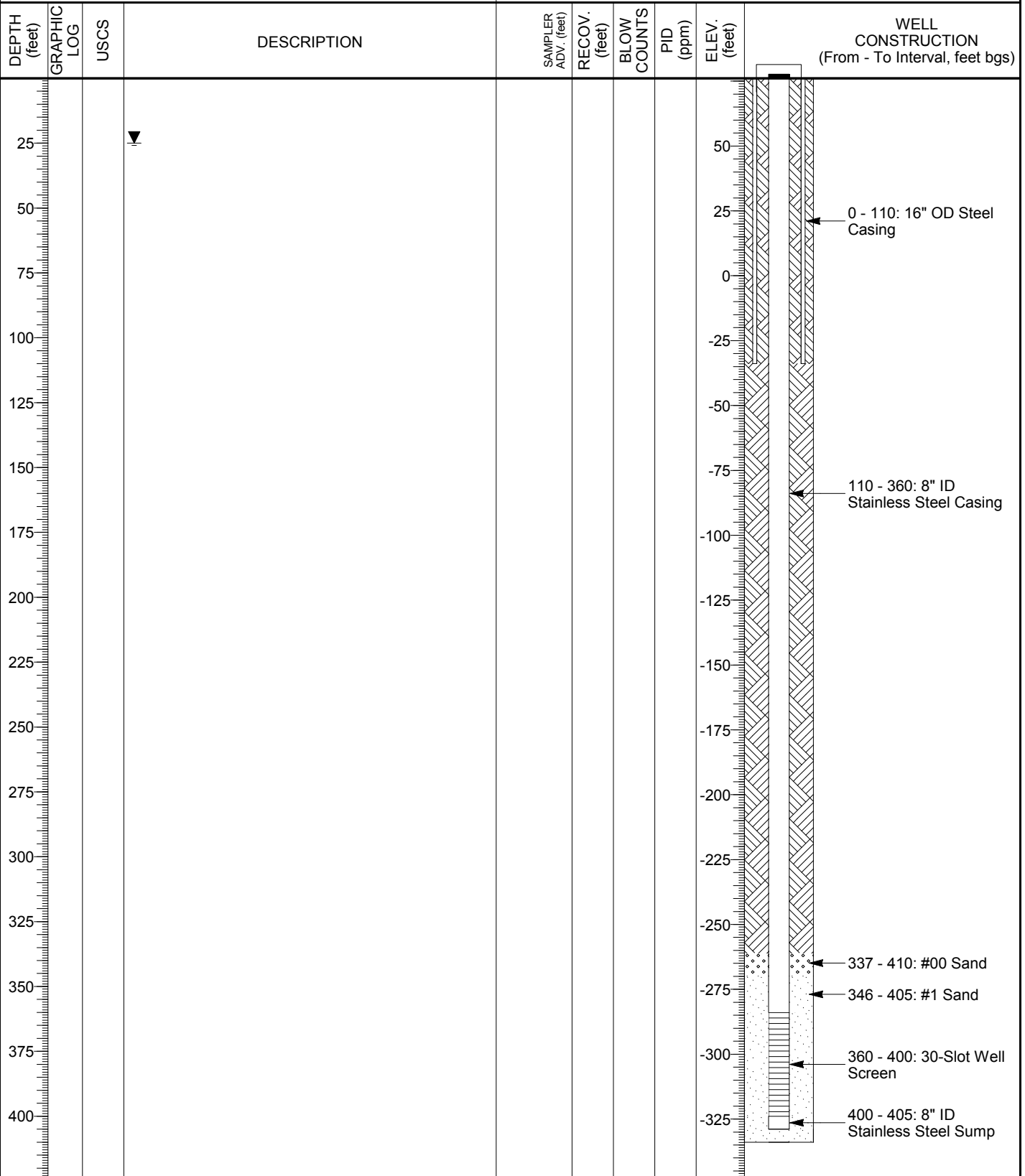
PAGE 1 OF 1

PROJECT: Old Roosevelt Site
LOCATION: Garden City, Nassau County, New York

WELL NO: **SEW-1S**

STARTED: 2/11/13 COMPLETED: 2/15/13
DRILLING COMPANY: Uni-Tech Drilling
DRILLING EQUIPMENT: Failing Jed A
DRILLING METHOD: Reverse Circulation, 16-inch diameter
SAMPLING METHOD: NA
SURFACE COMPLETION: Steel Flush-mount

NORTHING: 205348.18 Feet EASTING: 1090020.01 Feet
G.S. ELEVATION: 76.1 Feet M.P. ELEV:
INITIAL DTW: 25 Feet TOTAL DEPTH: 410.0 Feet
LOGGED BY: Mike Ehnot
HORIZONTAL DATUM: NAD83, COORD. SYS.: NY State Plane
VERTICAL DATUM: NAVD88



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WELL
CONSTRUCTION LOG

PROJECT NO.

PAGE 1 OF 1

WELL CONSTRUCTION LOG: STANDARD ROOSEVELT_FIELD_04-11-2013_AE.GPJ STANDARD ENVIRONMENTAL_PROJECT.GDT 4/11/13 REV

| | | | |
|---|--|--|--|
| PROJECT: Old Roosevelt Field | | Soil Boring: TB-01 | |
| LOCATION: Garden City, NY | | US EPA | |
| STARTED: 5/4/10 COMPLETED: 5/13/10 DRILLING COMPANY: Uni-Tech Drilling DRILLING EQUIPMENT: Failing CF-1500 DRILLING METHOD: Standard Mud Rotary SAMPLING METHOD: Split-Spoon HOLE COMPLETION: Converted to EW-1D | | LATITUDE: 40.73577 LONGITUDE: -73.61737 G.S. ELEVATION: 88.12 DEPTH TO WATER: ~ 40 feet bgs LOGGED BY: Frank Robinson BOREHOLE DIAMETER: 9 inches TOTAL DEPTH: 415 Feet | |

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|------------------------------------|----------|---------------------|------------------|--------------|--------------------------|
| 5 | | | | | | | | |
| 10 | | | F-M Sand, Some Silt, Little Gravel | | 5 16 25 82 | 0.75 | 0 | |
| 15 | | | | | | | | |
| 20 | | | Same as Above | | 7 21 43 50 | 0.33 | 0 | |
| 25 | | | | | | | | |
| 30 | | | No Recovery | | 7 7 9 18 | 0 | 0 | |
| 35 | | | | | | | | |
| 40 | | | F-M Sand, Some Gravel | | 5 7 33 41 | 0.83 | 0 | |
| 45 | | | | | | | | |

STANDARD LOG: DPT BORING - ORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/5/13 REV.



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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ

PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|-------------------------|----------|----------------------|------------------|--------------|--------------------------|
| | | | Same as Above | | 8 17 22 29 | 0.67 | 0 | |
| 55 | | | | | | | | |
| 60 | | | F Sand, Some Silt | | 16 29 25 26 | 0.58 | 0 | |
| 65 | | | | | | | | |
| 70 | | | F Sand, Some Gravel | | 22 27 34 36 | 0.67 | 0 | |
| 75 | | | | | | | | |
| 80 | | | F Sand | | 26 26 32 42 | 1.25 | 0 | |
| 85 | | | | | | | | |
| 90 | | | No Sample due to gravel | | | 0 | 0 | |
| 95 | | | | | | | | |
| 100 | | | F Sand, Some Silt | | 7 17 27 36 | 1.33 | 0 | |
| | | | | | | | | |

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|------------------------|----------|----------------------|------------------|--------------|--------------------------|
| 110 | | | Sandy Silt | | 22 49 47 53 | 1.58 | 0 | |
| 115 | | | | | | | | |
| 120 | | | Same as Above | | 17 19 23 27 | 1.16 | 0 | |
| 125 | | | | | | | | |
| 130 | | | F Sand | | 7 7 13 15 | 0.25 | 0 | |
| 135 | | | | | | | | |
| 140 | | | F Sand, Black Mottling | | 9 11 15 33 | 0.67 | 0 | |
| 145 | | | | | | | | |
| 150 | | | F Sand | | 27 31 37 42 | 0.67 | 0 | |
| 155 | | | | | | | | |

STANDARD LOG: DPT BORING - ORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/5/13 REV.

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PAGE 3 OF 8

PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---------------------|----------|----------------------|------------------|--------------|--------------------------|
| 165 | | | F Sand | | 5 7 7 7 | 1 | 0 | |
| 170 | | | F Sand, Little Silt | | 5 5 7 7 | 0.83 | 0 | |
| 175 | | | | | | | | |
| 180 | | | F Sand, Little Silt | | 18 22 23 21 | 0.25 | 0 | |
| 185 | | | | | | | | |
| 190 | | | Silty Clay | | 6 13 13 15 | 0.83 | 0 | |
| 195 | | | | | | | | |
| 200 | | | F Sand, Little Silt | | 21 23 31 43 | 0.41 | 0 | |
| 205 | | | F Sand | | 40 49 55 52 | 0.75 | 0 | |
| 210 | | | No Sample | | 33 15 5 5 | 0 | 0 | |
| 215 | | | | | | | | |

STANDARD LOG: DPT BORING - ORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/5/13 REV.

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|------------------------------------|----------|----------------------|------------------|--------------|--------------------------|
| | | | F Sand, Black Mottling, Trace Silt | | 7 7 7 7 | 1.25 | 0 | |
| 220 | | | F Sand | | 39 42 28 40 | 0.5 | 0 | |
| 225 | | | Sandy Silt | | 7 13 22 28 | 1.25 | 0 | |
| 230 | | | Silty Clay | | 27 38 50(4") | 1 | 0 | |
| 235 | | | Silty Sand | | 39 44 27 34 | 1.16 | 0 | |
| 240 | | | F Sand, Little Silt | | 21 23 17 20 | 1.08 | 0 | |
| 245 | | | Sandy Silt | | 20 23 27 38 | 1.08 | 0 | |
| 250 | | | F-M Sand, Little Silt | | 19 21 27 38 | 0.67 | 0 | |
| 255 | | | Same as Above | | 22 29 50(5") | 0.58 | 0 | |
| 260 | | | F Sand, Some Silt | | 37 48 50(5") | 0.58 | 0 | |
| 265 | | | Same as Above | | 48 62 | 0.5 | 0 | |
| 270 | | | | | | | | |

STANDARD LOG: DPT BORING - ORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/5/13 REV.

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---------------------|----------|--------------------|------------------|--------------|--------------------------|
| | | | Same as Above | | 52 60 | 0.5 | 0 | |
| 275 | | | F Sand, Little Silt | | 44 52 | 1 | 0 | |
| 280 | | | Silt | | 49 61 | 1.16 | 0 | |
| 285 | | | F-M Sand | | 37 50(6") | 0.25 | 0 | |
| 290 | | | Same as Above | | 65 50(3") | 0.58 | 0 | |
| 295 | | | Silty Sand | | 51 55 | 0.91 | 0 | |
| 300 | | | F-M Sand, micaceous | | 63 74 | 1 | 0 | |
| 305 | | | Same as Above | | 53 55 | 0.41 | 0 | |
| 310 | | | F Sand | | 100(6") | 0.5 | 0 | |
| 315 | | | Same as Above | | 65 70 | 0.41 | 0 | |
| 320 | | | F-M Sand, Some Silt | | 31 45 50(4") | 0.75 | 0 | |
| 325 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---------------------|----------|--------------------------|------------------|--------------|--------------------------|
| | | | Same as Above | | 49 71 | 0.58 | 0 | |
| 330 | | | Same as Above | | 44 56 | 0.67 | 0 | |
| 335 | | | F Sand, Some Silt | | 44 66 | 0.58 | 0 | |
| 340 | | | F Sand, micaceous | | 21 15 17 21 | 0.67 | 0 | |
| 345 | | | F-M Sand, Some Silt | | 30 18 10 23 | 0.33 | 0 | |
| 350 | | | F Sand | | 100(6") | 0.41 | 0 | |
| 355 | | | Same as Above | | 100(5") | 0.67 | 0 | |
| 360 | | | Same as Above | | 75 50(5") | 0.67 | 0 | |
| 365 | | | F Sand | | 32 27 35 50(4") | 0.91 | 0 | |
| 370 | | | FSand, Some Silt | | 49 72 | 0.83 | 0 | |
| 375 | | | F Sand | | 21 10 10 10 | 0.83 | 0 | |
| 380 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-01

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|-------------|----------|----------------------|------------------|--------------|--------------------------|
| 385 | | | F Sand | | 8 10 22 34 | 0.58 | 0 | |
| 390 | | | F Sand | | 33 37 41 49 | 1.16 | 0 | |
| 395 | | | F Sand | | 18 20 21 22 | 0.58 | 0 | |
| 400 | | | F Sand | | 17 17 21 25 | 0.91 | 0 | |
| 405 | | | F Sand | | 17 20 23 23 | 0.5 | 0 | |
| 410 | | | F-M Sand | | 80 54 | 0.75 | 0 | |
| 415 | | | Silt | | 41 47 50(5") | 1.25 | 0 | |
| 420 | | | Silt | | 53 58 | 1.25 | 0 | |
| 425 | | | | | | | | |
| 430 | | | | | | | | |
| 435 | | | | | | | | |

STANDARD LOG: DPT BORING - ORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/5/13 REV.

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SOIL BORING LOG

Project No.: 3320.023.RIZ.CSOSZ



| | | | |
|--------------------------------------|--------------------|---|--|
| PROJECT: Old Roosevelt Field | | Soil Boring: TB-1 | |
| LOCATION: Garden City, NY | | US EPA | |
| STARTED: 11/19/12 | COMPLETED: 12/5/12 | LATITUDE: 1089964.00000 LONGITUDE: 205443.00000 | |
| DRILLING COMPANY: Uni-Tech Drilling | | G.S. ELEVATION: 74.00 | |
| DRILLING EQUIPMENT: Failing CF-1500 | | DEPTH TO WATER: ~ 20 feet bgs | |
| DRILLING METHOD: Standard Mud Rotary | | LOGGED BY: Mike Ehnot | |
| SAMPLING METHOD: Split-Spoon | | BOREHOLE DIAMETER: 9 inches | |
| HOLE COMPLETION: Converted to SEW-1D | | TOTAL DEPTH: 555 Feet | |

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---|---------------|-------------------|------------------|--------------|--------------------------|
| 5 | | | F-M Sand, Trace C Sand, Some F-C Gravel, rounded. | Very Moist | 3 5 7 7 | 0.2 | 0 | |
| 10 | | | F-M Gravel, rounded And F Cobble, rounded. | Wet | 2 3 5 9 | 0.1 | 0 | |
| 15 | | | | | | | | |
| 20 | | | F-M Sand, Some F-C Gravel, rounded, Little F Cobble, rounded. | Moist | 5 5 5 5 | 0.1 | 0 | |
| 25 | | | | | | | | |
| 30 | | | No Recovery | | 6 7 5 5 | 0 | 0 | |
| 35 | | | | | | | | |
| 40 | | | C Gravel And F Cobble, rounded. | Wet | 5 7 8 17 | 0.3 | 0 | |
| 45 | | | | | | | | |

STANDARD LOG: DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/3/13 REV.

| | |
|------------------------------|--------------------------|
| PROJECT: Old Roosevelt Field | Soil Boring: TB-1 |
| LOCATION: Garden City, NY | |

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---|------------|----------------------|------------------|--------------|--------------------------|
| | | | F-M Sand And F-C Gravel & F Cobble, rounded. | Saturated | 40 50(1) | 0.2 | 0 | |
| 55 | | | | | | | | |
| 60 | | | Silty Sand, Trace Clay, Trace M-C Gravel. | Wet | 5 5 15 15 | 0.1 | 0 | |
| 65 | | | | | | | | |
| 70 | | | Clayey Silt w/ lenses of Gray Silty F Sand, Trace Black Organics. | Moist | 12 12 21 30 | 0.6 | 0 | |
| 75 | | | | | | | | |
| 80 | | | F-M Sand, Little to Some Silt. | Very Moist | 7 15 17 20 | 0.4 | 0 | |
| 85 | | | | | | | | |
| 90 | | | F-M Sand, Trace to Little Silt. | Moist | 12 18 24 32 | 0.5 | 0 | |
| 95 | | | | | | | | |
| 100 | | | F-M Sand, Trace Silt. | Moist | 9 11 16 13 | 0.6 | 0 | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|----------------------------------|----------|-------------------|------------------|--------------|--------------------------|
| 110 | | | Same as Above | Moist | 4 7 8 10 | 0.5 | 0 | |
| 115 | | | | | | | | |
| 120 | | | C Gravel, poorly sorted, rounded | Wet | 31 50(3) | 0.3 | 0 | |
| | | | No Recovery | Wet | 34 | 1 | 0 | |
| | | | | Wet | 41 | | | |
| 125 | | | Same as Above | Wet | 50(4) | | | |
| | | | M Sand, poorly sorted. | | | | | |
| 130 | | | Same as Above | Wet | 42 50(2) | 0.4 | 0 | |
| 135 | | | | | | | | |
| 140 | | | M Sand, Trace F Gravel. | Wet | 40 50(4) | 0.4 | 0 | |
| 145 | | | | | | | | |
| 150 | | | No Recovery | | 21 31 50(4) | 0 | 0 | |
| 155 | | | | | | | | |

STANDARD LOG: DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 4/3/13 REV.

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ



PAGE 3 OF 11

PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|------------------------------------|-------------------|----------------------|------------------|--------------|--------------------------|
| | | | Silty Clay | Slightly Moist | 18 49 50(3) | 0.2 | 0 | |
| 165 | | | | | | | | |
| 170 | | | Clayey Silt, Trace vF Sand lenses. | Dry | 16 18 24 36 | 1.6 | 0 | |
| 175 | | | | | | | | |
| 180 | | | No Recovery | Dry | 22 | | | |
| | | | Silty Clay, stiff. | Dry | 22 | 1.2 | 0 | |
| | | | Silty Clay, stiff. | | 33 | | | |
| 185 | | | | | 48 | | | |
| 190 | | | F Sand | Dry | 25 25 30 32 | 1 | 0 | |
| 195 | | | | | | | | |
| 200 | | | F Sand, slightly micaceous. | Dry | 16 30 100(5) | 0.3 | 0 | |
| 205 | | | | | | | | |
| 210 | | | F-M Sand | Dry | 16 18 14 12 | 0.4 | 0 | |
| 215 | | | | | | | | |

STANDARD LOG: DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 4/3/13 REV.

110 Fieldcrest Avenue, #8

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Edison, NJ 08837

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Fax: (732) 225-7851

SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ



PAGE 4 OF 11

PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---------------------------------|-----------------------------|----------------------|------------------|--------------|--------------------------|
| 220 | | | F-M Sand, Trace Silt. | Dry | 35 100(5) | 0.4 | 0 | |
| 225 | | | | | | | | |
| 230 | | | No Recovery | Slightly Moist | 12 12 | 1.1 | 0 | |
| | | | F Sand, Trace Silt, soft. | Dry | 19 | | | |
| | | | F-M Sand, laminated | Slightly Moist | 21 | | | |
| 235 | | | F-M Sand, slightly micaceous. | | | | | |
| 240 | | | No Recovery | Dry | 6 8 9 10 | 0.5 | 0 | |
| | | | F-M Sand, laminated | Dry to Slightly Moist | | | | |
| 245 | | | F-M Sand, Trace to Little Silt. | | | | | |
| 250 | | | F-M Sand | Slightly Moist | 31 46 100(3) | 0.6 | 0 | |
| 255 | | | | | | | | |
| 260 | | | Same as Above | Very Moist | 30 47 37 26 | 0.6 | 0 | |
| 265 | | | | | | | | |
| 270 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

PAGE 5 OF 11

STANDARD LOG. DPT BORING - POHATCONG NEWORF2012-13 GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 4/3/13 REV.

CDM
Smith

PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|-------------------------------|------------------------------|----------------------|------------------|--------------|--------------------------|
| | | | F-M Sand, slightly micaceous. | Dry | 19 27 49 62 | 0.9 | 0 | TB-1-275 275'-277' |
| 275 | | | Same as Above | Moist | 40 47 29 10 | 0.9 | 0 | |
| 280 | | | | | | | | |
| 285 | | | Same as Above | Moist | 47 52 53 27 | 1.1 | 0 | |
| 290 | | | | | | | | TB-1-295 295'-297' |
| 295 | | | No Recovery | Moist Slightly Moist | 40 41 52 56 | 1.8 | 0 | |
| | | | F-M Sand | | | | | |
| 300 | | | Same as Above | | | | | |
| 305 | | | F-M Sand, well sorted. | Moist | 19 25 29 36 | 1.8 | 0 | TB-1-315 315'-317' |
| 310 | | | | | | | | |
| 315 | | | No Recovery | Moist Dry Dry Moist | 24 36 46 67 | 1.9 | 0 | |
| | | | F-M Sand, well sorted. | | | | | |
| 320 | | | Same as Above | | | | | |
| | | | F-M Sand | | | | | |
| | | | F-M Sand, laminated | | | | | |
| 325 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---|-------------------------|----------------------|------------------|--------------|--------------------------|
| 330 | | | F-M Sand | Slightly Moist | 23 34 46 58 | 1.2 | 0 | |
| 335 | | | F-M Sand | Moist | 24 40 46 46 | 0.8 | 0 | |
| 340 | | | Same as Above | Dry | 41 48 67 42 | 0.9 | 0 | |
| 345 | | | Silt, stiff, Trace F Sand, dense. | Dry | 41 56 100(3) | 1 | 0 | |
| 350 | | | Silt, stiff, Trace F Sand, slightly micaceous, dense. | Dry | 21 26 50(3) | 0.9 | 0 | TB-1-350 350'-352' |
| 355 | | | No Recovery | Dry | 19 34 50(4) | 0.8 | 0 | |
| | | | Same as Above | Moist | | | | |
| 360 | | | F-M Sand | | | | | |
| | | | F-M Sand | Very to Saturated | 14 18 29 45 | 0.7 | 0 | |
| 365 | | | F-M Sand | Slightly Moist | 16 24 50(4) | 0.7 | 0 | |
| 370 | | | F-M Sand | Slightly Moist | 35 50(4) | 0.5 | 0 | TB-1-370 370'-372' |
| 375 | | | Same as Above | Dry | 50(2) | 0.2 | 0 | |
| 380 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

CDM
Smith

PAGE 7 OF 11

STANDARD LOG DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD_ENVIRONMENTAL_PROJECT.GDT 4/3/13 REV.

PROJECT: Old Roosevelt Field

LOCATION: Garden City, NY

Soil Boring:

TB-1

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|------------------------|-------------------|----------------------------------|------------------|--------------|--------------------------|
| | | | Same as Above | Very Moist | 30 47 50(3) | 0.3 | 0 | TB-1-390 390'-392' |
| 385 | | | No Recovery | Moist | 31 47 | 1.2 | 0 | |
| | | | Same as Above | Moist | 50(3) | | | |
| 390 | | | F-M Sand | | | | | |
| | | | F-M Sand, Trace Silt. | Saturated | 15 17 19 23 | 0.4 | 0 | |
| 395 | | | No Recovery | | 16 47 27 | 0 | 0 | |
| | | | vF-F Sand, Trace Silt. | Moist | 35 31 37 | 0.4 | 0 | |
| 400 | | | VF-F Sand | Saturated | 43 35 20 31 34 37 | 0.3 | 0 | |
| 405 | | | No Recovery | Wet Dry | 34 43 53 56 | 1.5 | 0 | |
| | | | F-M Sand, Trace C Sand | | | | | |
| 410 | | | Silty F Sand, stiff. | | | | | TB-1-410 410'-412' |
| | | | Same as Above | Dry to Moist | 29 31 43 50(5) | 1.9 | 0 | |
| 415 | | | vF-F Sand, Trace Silt. | Slightly Moist | 16 18 28 34 | 1.2 | 0 | |
| 420 | | | vF-F Sand | Moist | 13 16 19 10 | 1.1 | 0 | |
| 425 | | | Same as Above | Moist | 20 23 50(3) | 0.7 | 0 | TB-1-430 430'-432' |
| 430 | | | vF-F Sand | Moist | 22 34 39 50(5) | 1.8 | 0 | |
| 435 | | | | | | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

CPM
Smith

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STANDARD LOG: DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 4/3/13 REV.

| | |
|------------------------------|--------------------------|
| PROJECT: Old Roosevelt Field | Soil Boring: TB-1 |
| LOCATION: Garden City, NY | |

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---|---------------------------------|-------------------------|------------------|--------------|--------------------------|
| | | | vF-F Sandy Silt | Slightly Moist | 25 31 47 50(3) | 1.7 | 0 | |
| 440 | | | F Sand, Trace Silt. | Moist Slightly Moist | 20 25 31 50(5) | 2 | 0 | |
| | | | Silt, Trace F Sand, stiff | | | | | |
| 445 | | | No Recovery | Slightly Moist | 26 48 50(3) | 0.9 | 0 | |
| | | | Silt, stiff, Trace F Sand | Very Moist | | | | |
| 450 | | | F-M Sand And F-C Gravel, rounded, Trace C Sand | | | | | |
| | | | No Recovery | Dry | 45 100(5) | 1 | 0 | TB-1-450 450'-452' |
| | | | Silt, stiff, Trace F Sand, dense. | | | | | |
| 455 | | | vF-F Sand | Saturated | 28 37 50(3) | 0.3 | 0 | |
| 460 | | | | | | | | |
| 465 | | | | | | | | |
| 470 | | | No Recovery | Dry | 9 11 11 15 | 1.1 | 0 | TB-1-470 470'-472' |
| | | | Silty vF-F Sand, stiff. | Slightly Moist Dry Dry | | | | |
| 475 | | | Silty F Sand, Trace C Sand, Trace F Cobble. | | | | | |
| | | | Silt, stiff, Trace F Sand. | Moist Dry Saturated | 11 13 15 17 | 1.2 | 0 | |
| | | | Silt, stiff, dense. No Recovery | | | | | |
| 480 | | | F-M Sand, Trace C Sand, Trace Silt. | Saturated | 13 16 22 28 | 0.4 | 0 | |
| | | | Silt, stiff. | | | | | |
| 485 | | | F-M Sand, Trace C Sand. F-C Sand | | | | | |
| | | | F-M Sand, Trace C Sand, Trace F Gravel, rounded | Very Moist | 18 21 25 32 | 0.5 | 0 | |
| 490 | | | | Wet | 18 | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ



PROJECT: Old Roosevelt Field

Soil Boring:

TB-1

LOCATION: Garden City, NY

| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
|-----------------|----------------|------|---|--------------------------|-------------------|------------------|--------------|--------------------------|
| | | | F-M Sand And F-C Gravel, rounded. | | 25 28 35 | 0.2 | 0 | TB-1-490 490'-492' |
| 495 | | | F-M Sand And F-C Gravel, rounded, Trace F Cobble, subrounded. | Wet | 25 46 50(3) | 0.4 | 0 | |
| 500 | | | F-C Gravel, rounded & subrounded, Trace F Sand. | Saturated | 42 50(1) | 0.5 | 0 | |
| 505 | | | No Recovery | Saturated | 47 50(1) | 0.4 | 0 | |
| | | | Same as Above | Dry | | | | |
| 510 | | | Silty Clay, stiff, dense. | Wet | 50 50(2) | 0.3 | 0 | TB-1-510 510'-512' |
| | | | Silty Clay And C Gravel. | | | | | |
| 515 | | | No Recovery | | 50 50(2) | 0 | 0 | |
| 520 | | | F-M Sand And F-M Gravel, rounded & subrounded. | Wet | 55 50(1) | 0.2 | 0 | |
| 525 | | | F Sand And F Gravel, rounded & subrounded. | Saturated | 58 50(1) | 0.2 | 0 | |
| 530 | | | No Recovery | Slightly Moist Dry | 25 37 50(1) | 0.9 | 0 | TB-1-530 530'-532' |
| | | | F Sand | | | | | |
| 535 | | | Clayey Silt, Trace vF Sand, stiff, dense. | Dry | 39 50(4) | 0.8 | 0 | |
| | | | Clayey Silt, stiff, Trace vF Sand, dense. | | | | | |
| 540 | | | Silty vF-F Sand, dense. | Slightly Moist | 42 50(6) | 1 | 0 | |
| 545 | | | | Dry | 52 | | | |

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SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

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STANDARD LOG: DPT BORING - POHATCONG NEWOR2012-13.GPJ STANDARD ENVIRONMENTAL PROJECT GDT 4/3/13 REV.

CDM
Smith

| PROJECT: Old Roosevelt Field LOCATION: Garden City, NY | | | Soil Boring: TB-1 | | | | | |
|---|----------------|------|-------------------------|----------|----------------|------------------|--------------|--------------------------|
| DEPTH (feet) | GRAPHIC LOG | USCS | DESCRIPTION | Moisture | Blow Counts | RECOV. (feet) | PID (ppm) | SOIL BORING SAMPLE ID |
| | | | Silty vF-F Sand | | 50(1) | 0.5 | 0 | TB-1-550 550'-552' |
| 550 | | | Same as Above | Dry. | 100(6) | 0.2 | 0 | |
| 555 | | | | | | | | |
| | | | Silty vF-F Sand, dense. | Dry | 50 50 | 0.2 | 0 | |
| 560 | | | | | | | | |
| 565 | | | | | | | | |
| 570 | | | | | | | | |
| 575 | | | | | | | | |
| 580 | | | | | | | | |
| 585 | | | | | | | | |
| 590 | | | | | | | | |
| 595 | | | | | | | | |
| 600 | | | | | | | | |

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**CDM
Smith**

SOIL BORING LOG

Project No.: 3323.023.R12.CSOSZ

STANDARD LOG: DPT BORING - POHATCONG NEWORF2012-13.GPJ STANDARD ENVIRONMENTAL PROJECT.GDT 4/3/13 REV.

County

NassauWell Number N-13871

COMPLETION REPORT—LONG ISLAND WELL

(EW-1D)

| | | | |
|--|---|--|------------|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 87 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old County Rd Garden City NY | | Top of casing is located 87 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 415' | DEPTH TO GROUNDWATER FROM SURFACE 30' | | |
| CASINGS | | | |
| DIAMETER 16 in. | 8 in. | 8 in. | in. |
| LENGTH 80 ft. | 350 ft. | 5 ft. | ft. |
| SEALING Cement/Bentonite | CASINGS REMOVED N/A | | |
| SCREENS | | | |
| MAKE Johnson | OPENINGS .020 | | |
| DIAMETER 8 in. | in. | in. | in. |
| LENGTH 60 ft. | ft. | ft. | ft. |
| DEPTH TO TOP FROM TOP OF CASING 350' | | | |
| PUMPING TEST | | | |
| DATE 9/7/2010 | TEST OR PERMANENT PUMP? Test | | |
| DURATION OF TEST days 72 hours | MAXIMUM DISCHARGE 110 gallons per min. | | |
| STATIC LEVEL PRIOR TO TEST 34 ft. 8 in. below top of casing | LEVEL DURING MAXIMUM PUMPING 40 ft. 7 in. below top of casing | | |
| MAXIMUM DRAWDOWN 6 ft. | Approximate time of return to normal level after cessation of pumping 6 hours 0 min. | | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Extraction Well | |
| WORK STARTED 7/6/10 | | COMPLETED 7/9/10 | |
| DATE 7/9/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRD10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See attached

County NassauWell Number N-13872

COMPLETION REPORT—LONG ISLAND WELL

(EW-11)

| | | | |
|--|---|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 87 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old Country Rd Garden City NY | | Top of casing is located 87 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 345' | DEPTH TO GROUNDWATER FROM SURFACE 30' | | |
| CASINGS | | | |
| DIAMETER 16 in. 8 in. 8 in. in. | | | |
| LENGTH 80 ft. 280 ft. 5 ft. ft. | | | |
| SEALING Cement / Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .020 | |
| DIAMETER 8 in. in. in. in. | | | |
| LENGTH 60 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 280 | | | |
| PUMPING TEST | | | |
| DATE 9/7/10 | | TEST OR PERMANENT PUMP? Test | |
| DURATION OF TEST days 72 hours | | MAXIMUM DISCHARGE 70 gallons per min. | |
| STATIC LEVEL PRIOR TO TEST 35 ft. 6 in. below top of casing | | LEVEL DURING MAXIMUM PUMPING 38 ft. 2 in. below top of casing | |
| MAXIMUM DRAWDOWN 3 ft. | | Approximate time of return to normal level after cessation of pumping 6 hours 0 min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against ft. of discharge head | | | |
| NUMBER OF BOWLS OR STAGES ft. of total head | | | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Extraction Well | |
| WORK STARTED 7/14/10 | | COMPLETED 7/23/10 | |
| DATE 7/23/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRD 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

see attached

County NassauWell Number N-13873

COMPLETION REPORT—LONG ISLAND WELL

(EW-15)

| | | | |
|--|-------------------------------------|---|--|
| OWNER <u>USEPA Region 2</u> | | *LOG | |
| ADDRESS <u>290 Broadway Floor 26 NY NY 10007</u> | | Ground surface is located <u>87</u> Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL <u>640 Old Country Rd Garden City NY</u> | | Top of casing is located <u>87</u> Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE <u>275'</u> | | DEPTH TO GROUNDWATER FROM SURFACE <u>30'</u> | |
| CASINGS | | | |
| DIAMETER <u>16</u> in. <u>8</u> in. <u>8</u> in. in. | | | |
| LENGTH <u>82</u> ft. <u>210</u> ft. <u>5</u> ft. ft. | | | |
| SEALING <u>Cement/Bentonite</u> | | CASINGS REMOVED <u>N/A</u> | |
| SCREENS | | | |
| MAKE <u>Johnson</u> | | OPENINGS <u>.020</u> | |
| DIAMETER <u>8</u> in. in. in. in. | | | |
| LENGTH <u>60</u> ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING <u>210'</u> | | | |
| PUMPING TEST | | | |
| DATE <u>9/7/10</u> | | TEST OR PERMANENT PUMP? <u>Test</u> | |
| DURATION OF TEST days <u>72</u> hours | | MAXIMUM DISCHARGE <u>70</u> gallons per min. | |
| STATIC LEVEL PRIOR TO TEST <u>36</u> ft. <u>4</u> in. below top of casing | | LEVEL DURING MAXIMUM PUMPING <u>38</u> ft. <u>9</u> in. below top of casing | |
| MAXIMUM DRAWDOWN <u>2</u> ft. | | Approximate time of return to normal level after cessation of pumping <u>6</u> hours <u>0</u> min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against ft. of discharge head | | | |
| NUMBER OF BOWLS OR STAGES ft. of total head | | | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER <u>Extraction well</u> | |
| WORK STARTED <u>7/29/10</u> | | COMPLETED <u>8/5/10</u> | |
| DATE <u>8/5/10</u> | DRILLER <u>Karl Hitzelberger</u> | REGISTRATION NO. <u>NYRD 10395</u> | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See attached

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell Number N-13870

COMPLETION REPORT—LONG ISLAND WELL

(MW-031)

| | | | |
|--|-------------------------------------|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 84 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old Country Rd Garden City NY | | Top of casing is located 84 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 320' | | DEPTH TO GROUNDWATER FROM SURFACE 25' | |
| CASINGS | | | |
| DIAMETER 8 in. 4 in. 4 in. in. | | | |
| LENGTH 80 ft. 304 ft. 6 ft. ft. | | | |
| SEALING Cement/Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .010 | |
| DIAMETER 4 in. in. in. in. | | | |
| LENGTH 10 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 304' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Monitoring | |
| WORK STARTED 5/19/10 | | COMPLETED 5/21/10 | |
| DATE 5/21/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRD 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See attached

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell Number N-13869

COMPLETION REPORT—LONG ISLAND WELL

(MW-021)

| | | | |
|--|-------------------------------------|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 86 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old Country Rd Garden City NY | | Top of casing is located 86 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 321' | | DEPTH TO GROUNDWATER FROM SURFACE 30' | |
| CASINGS | | | |
| DIAMETER 8 in. 4 in. 4 in. in. | | | |
| LENGTH 82 ft. 306 ft. 5 ft. ft. | | | |
| SEALING Cement/Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .010 | |
| DIAMETER 4 in. in. in. in. | | | |
| LENGTH 10 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 306' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Monitoring | |
| WORK STARTED 6/1/10 | | COMPLETED 6/3/10 | |
| DATE 6/3/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRD 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See Instructions as to Well Driller's Registration and Reports. | | | |

See attached

ORIGINAL—Environmental Conservation Copy

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell Number N-13868

COMPLETION REPORT—LONG ISLAND WELL

(MW-015)

| | | | |
|--|-------------------------------------|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 85.5 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old Country Rd Garden City NY | | Top of casing is located 85.5 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 250' | | DEPTH TO GROUNDWATER FROM SURFACE 30' | |
| CASINGS | | | |
| DIAMETER 8 in. 4 in. 4 in. in. | | | |
| LENGTH 80 ft. 235 ft. 5 ft. ft. | | | |
| SEALING Cement/Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .010 | |
| DIAMETER 4 in. in. in. in. | | | |
| LENGTH 10 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 235' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Monitoring | |
| WORK STARTED 6/9/10 | | COMPLETED 6/10/10 | |
| DATE 6/10/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRO 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See attached

ORIGINAL—Environmental Conservation Copy

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell Number N-13867

COMPLETION REPORT—LONG ISLAND WELL

(MW-03S)

| | | | |
|--|-------------------------------------|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 84 Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL 640 Old Country Rd Garden City NY | | Top of casing is located 84 Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE 249' | | DEPTH TO GROUNDWATER FROM SURFACE 25' | |
| CASINGS | | | |
| DIAMETER 8 in. 4 in. 4 in. in. | | | |
| LENGTH 80 ft. 234 ft. 5 ft. ft. | | | |
| SEALING Cement/Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .010 | |
| DIAMETER 4 in. in. in. in. | | | |
| LENGTH 10 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 234' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Monitoring | |
| WORK STARTED 5/17/10 | | COMPLETED 5/18/10 | |
| DATE 5/18/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NyRD10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See attached

ORIGINAL—Environmental Conservation Copy

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County NassauWell Number N-13866

COMPLETION REPORT—LONG ISLAND WELL

(NW-025)

| | | | |
|--|-------------------------------------|---|--|
| OWNER <u>USEPA Region 2</u> | | *LOG | |
| ADDRESS <u>290 Broadway Floor 26 NY NY 10007</u> | | Ground surface is located <u>86</u> Ft. above/below (+)(-) MSL | |
| LOCATION OF WELL <u>640 Old Country Rd Garden City NY</u> | | Top of casing is located <u>86</u> Ft. above/below (+)(-) MSL | |
| DEPTH OF WELL BELOW SURFACE <u>251'</u> | | DEPTH TO GROUNDWATER FROM SURFACE <u>22'</u> | |
| CASINGS | | | |
| DIAMETER <u>8</u> in. <u>4</u> in. <u>4</u> in. in. | | | |
| LENGTH <u>80</u> ft. <u>236</u> ft. <u>5</u> ft. ft. | | | |
| SEALING <u>Cement/Bentonite</u> | | CASINGS REMOVED <u>N/A</u> | |
| SCREENS | | | |
| MAKE <u>Johnson</u> | | OPENINGS <u>.010</u> | |
| DIAMETER <u>4</u> in. in. in. in. | | | |
| LENGTH <u>10</u> ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING <u>236'</u> | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER <u>Monitoring</u> | |
| WORK STARTED <u>05/26/10</u> | | COMPLETED <u>05/27/10</u> | |
| DATE <u>05/27/10</u> | DRILLER <u>Karl Hitzelberger</u> | REGISTRATION NO. <u>NYRD 10395</u> | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See Attached

ORIGINAL—Environmental Conservation Copy

County NassauWell Number N-13865

COMPLETION REPORT—LONG ISLAND WELL

(MW-011)

| | | | |
|--|-------------------------------------|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Floor 26 NY NY 10007 | | Ground surface is located 85.5 Ft. above/below (+)(-) MSL. | |
| LOCATION OF WELL 640 Old Country Rd Garden City N.Y. | | Top of casing is located 85.5 Ft. above/below (+)(-) MSL. | |
| DEPTH OF WELL BELOW SURFACE 320' | | DEPTH TO GROUNDWATER FROM SURFACE 30' | |
| CASINGS | | | |
| DIAMETER 8 in. 4 in. 4 in. in. | | | |
| LENGTH 80' ft. 305 ft. 5 ft. ft. | | | |
| SEALING Cement/Bentonite | | CASINGS REMOVED N/A | |
| SCREENS | | | |
| MAKE Johnson | | OPENINGS .010 | |
| DIAMETER 4 in. in. in. in. | | | |
| LENGTH 10 ft. ft. ft. ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 305' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING ft. in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | MAKE | MODEL NUMBER | |
| MOTIVE POWER | MAKE | H.P. | |
| CAPACITY g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input checked="" type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER Monitoring | |
| WORK STARTED 6/14/10 | | COMPLETED 6/16/10 | |
| DATE 6/16/10 | DRILLER Karl Hitzelberger | REGISTRATION NO. NYRD 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports. | | | |

See a tacked

County

Nassau

Well Number

SEW015

COMPLETION REPORT—LONG ISLAND WELL

| | | | |
|--|--|---|--|
| OWNER <u>USEPA Region 2</u> | | *LOG | |
| ADDRESS <u>290 Broadway Fl 26 NY NY 10007</u> | | Ground Surface | |
| LOCATION OF WELL <u>510 Stewart Ave Garden City NY 11530</u> | | EL. <u>76.1</u> ft. above sea | |
| DEPTH OF WELL BELOW SURFACE <u>410 Feet</u> | | TOP OF WELL <u>Flush Mount</u> | |
| DEPTH TO GROUNDWATER FROM SURFACE <u>25 feet</u> | | | |
| CASINGS | | | |
| DIAMETER <u>16 CS</u> <u>8 SS</u> | | | |
| LENGTH <u>110</u> ft. <u>360</u> ft. | | | |
| SEALING | | CASINGS REMOVED | |
| SCREENS | | | |
| MAKE <u>Stainless Steel</u> | | OPENINGS <u>30 slot</u> | |
| DIAMETER <u>8</u> in. <u>8</u> in. | | | |
| LENGTH <u>40</u> ft. <u>500</u> ft. <u>5</u> ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING <u>360'</u> | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST | | MAXIMUM DISCHARGE | |
| days | | gallons per min. | |
| hours | | | |
| STATIC LEVEL PRIOR TO TEST | | LEVEL DURING MAXIMUM PUMPING | |
| ft. | | in. below top of casing | |
| MAXIMUM DRAWDOWN | | Approximate time of return to normal level after cessation of pumping | |
| ft. | | hours min. | |
| PUMP INSTALLED | | | |
| TYPE | | MAKE | |
| MOTIVE POWER | | MODEL NUMBER | |
| CAPACITY | | H.P. | |
| g.p.m. against | | ft. of discharge head | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER | | DIAMETER | |
| in. | | in. | |
| LENGTH | | LENGTH | |
| ft. | | ft. | |
| METHOD OF DRILLING | | USE OF WATER | |
| <input type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | | |
| WORK STARTED <u>2/11/13</u> | | COMPLETED <u>2/15/13</u> | |
| DATE <u>2/18/13</u> | | LICENSE NUMBER <u>NYRD 10395</u> | |
| DRILLER <u>Karl H. Hylleberg</u> | | | |
| <p>* NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's License and Reports. Page 5-7.</p> | | | |

0-337' Cement
Bentonite

337-410
#00 Sand

346-405' #1
Sand

40' 8" ID SS
30 slot

110' 16" ID Steel

Casing

Screen
Sump

| OWNER | | *LOG | |
|---|--|--|--|
| USEPA Region 2 | | Ground Surface | |
| ADDRESS 290 Broadway Fl 26 NY NY 10007 | | EL. 76.36 ft. above sea | |
| LOCATION OF WELL 510 Stewart Ave Garden City NY 11530 | | A 0 ft. | |
| DEPTH OF WELL BELOW SURFACE 477 Feet | | DEPTH TO GROUNDWATER FROM SURFACE 25 Feet | |
| CASINGS | | TOP OF WELL Flush Mount | |
| DIAMETER 16 CS 8 SS in. in. in. in. | | | |
| LENGTH 110 ft. 414 ft. ft. ft. | | | |
| SEALING cement bentonite | | CASINGS REMOVED NO | |
| SCREENS | | | |
| MAKE Stainless Steel | | OPENINGS 20 slot | |
| DIAMETER 8 in. 8 in. 8 in. 8 in. | | | |
| LENGTH 20 ft. Blank 23 ft. 10 ft. Sump 5 ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 414' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | | MAKE MODEL NUMBER | |
| MOTIVE POWER | | MAKE H.P. | |
| CAPACITY g.p.m. against ft. of discharge head | | | |
| NUMBER OF BOWLS OR STAGES | | ft. of total head | |
| DROP LINE | | SUCTION LINE | |
| DIAMETER in. | | DIAMETER in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER | |
| WORK STARTED 1/28/13 | | COMPLETED 2/4/13 | |
| DATE 2/6/13 | | DRILLER Paul Stitzelberger | |
| | | LICENSE NUMBER NYRD 10395 | |
| * NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's License and Reports. Page 5-7. | | | |

ORIGINAL—Environmental Conservation Copy

84 ID SS Comp

Nassau



Well Number

SEW-01D

| | | | |
|--|--|---|--|
| OWNER USEPA Region 2 | | *LOG | |
| ADDRESS 290 Broadway Fl 26 NY NY 10007 | | Ground Surface EL. 76.28 ft. above sea | |
| LOCATION OF WELL 510 Stewart Ave Garden City NY 11530 | | $\frac{\Delta}{\nabla}$ 0 ft. | |
| DEPTH OF WELL BELOW SURFACE 535 Feet | | DEPTH TO GROUNDWATER FROM SURFACE 25 Feet | |
| CASINGS | | TOP OF WELL Flash Mount | |
| DIAMETER 16 CS 8 SS in. | | | |
| LENGTH 110 480 ft. | | | |
| SEALING cement/bentonite | | CASINGS REMOVED NO | |
| SCREENS | | | |
| MAKE stainless steel | | OPENINGS 30 slot | |
| DIAMETER 8 8 in. | | | |
| LENGTH 20 Blank 10 ft. | | | |
| DEPTH TO TOP FROM TOP OF CASING 480' | | | |
| PUMPING TEST | | | |
| DATE | | TEST OR PERMANENT PUMP? | |
| DURATION OF TEST days hours | | MAXIMUM DISCHARGE gallons per min. | |
| STATIC LEVEL PRIOR TO TEST ft. in. below top of casing | | LEVEL DURING MAXIMUM PUMPING in. below top of casing | |
| MAXIMUM DRAWDOWN ft. | | Approximate time of return to normal level after cessation of pumping hours min. | |
| PUMP INSTALLED | | | |
| TYPE | | MAKE | |
| MOTIVE POWER | | MODEL NUMBER | |
| CAPACITY g.p.m. against | | H.P. | |
| NUMBER OF BOWLS OR STAGES | | ft. of discharge head | |
| DROP LINE | | ft. of total head | |
| DIAMETER in. | | SUCTION LINE in. | |
| LENGTH ft. | | LENGTH ft. | |
| METHOD OF DRILLING <input type="checkbox"/> rotary <input type="checkbox"/> cable tool <input type="checkbox"/> other | | USE OF WATER | |
| WORK STARTED 1/14/13 | | COMPLETED 1/21/13 | |
| DATE 1/23/13 | | DRILLER Karl Hatzelberg | |
| | | LICENSE NUMBER NYRD 10395 | |
| <p>* NOTE: Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's License and Reports. Page 5-7.</p> | | | |

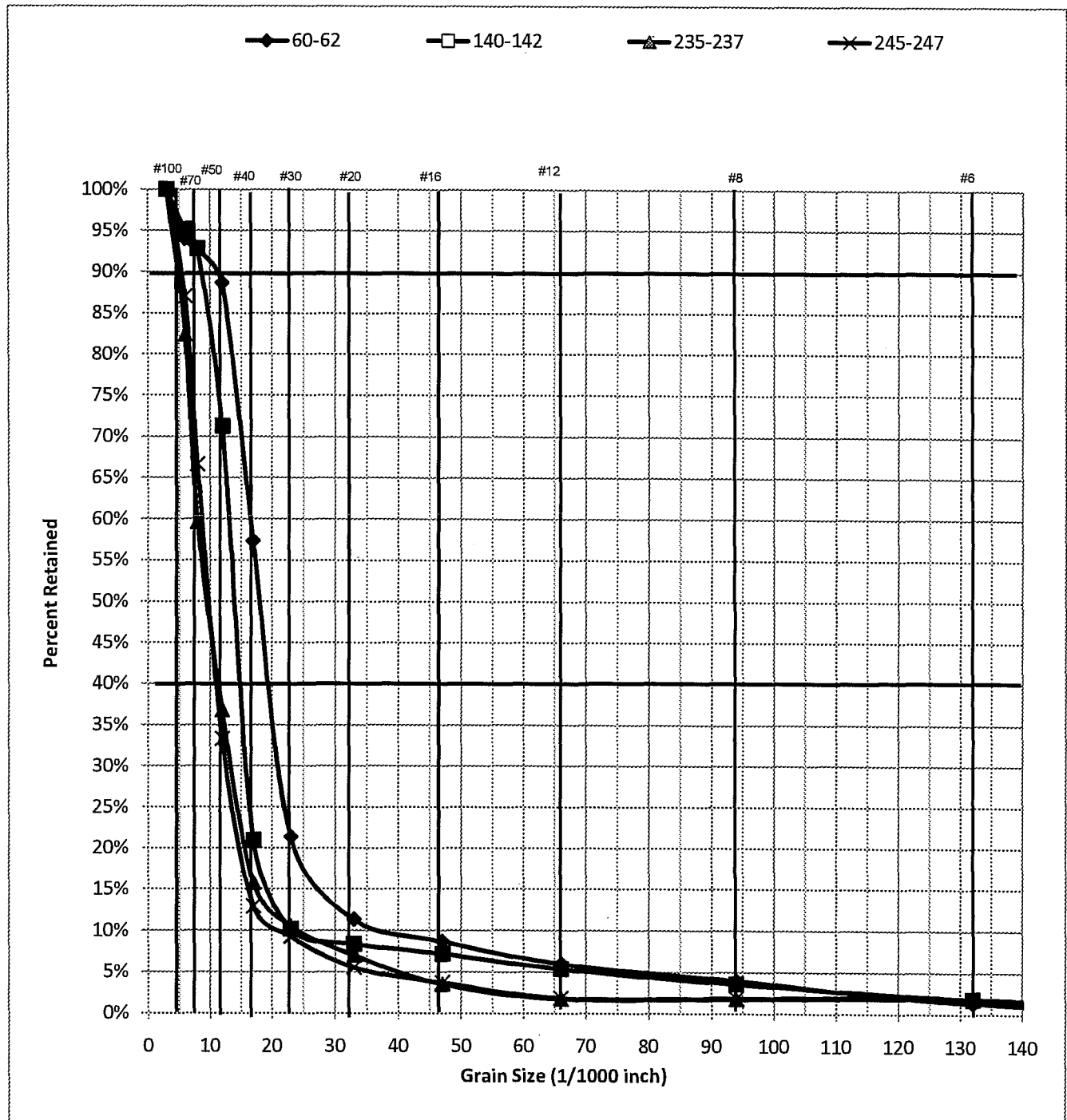
ORIGINAL—Environmental Conservation Copy

Casing

Screen Blank Screen
8" FD 55 Jump

Appendix E

Grain Size and Gamma Log Data

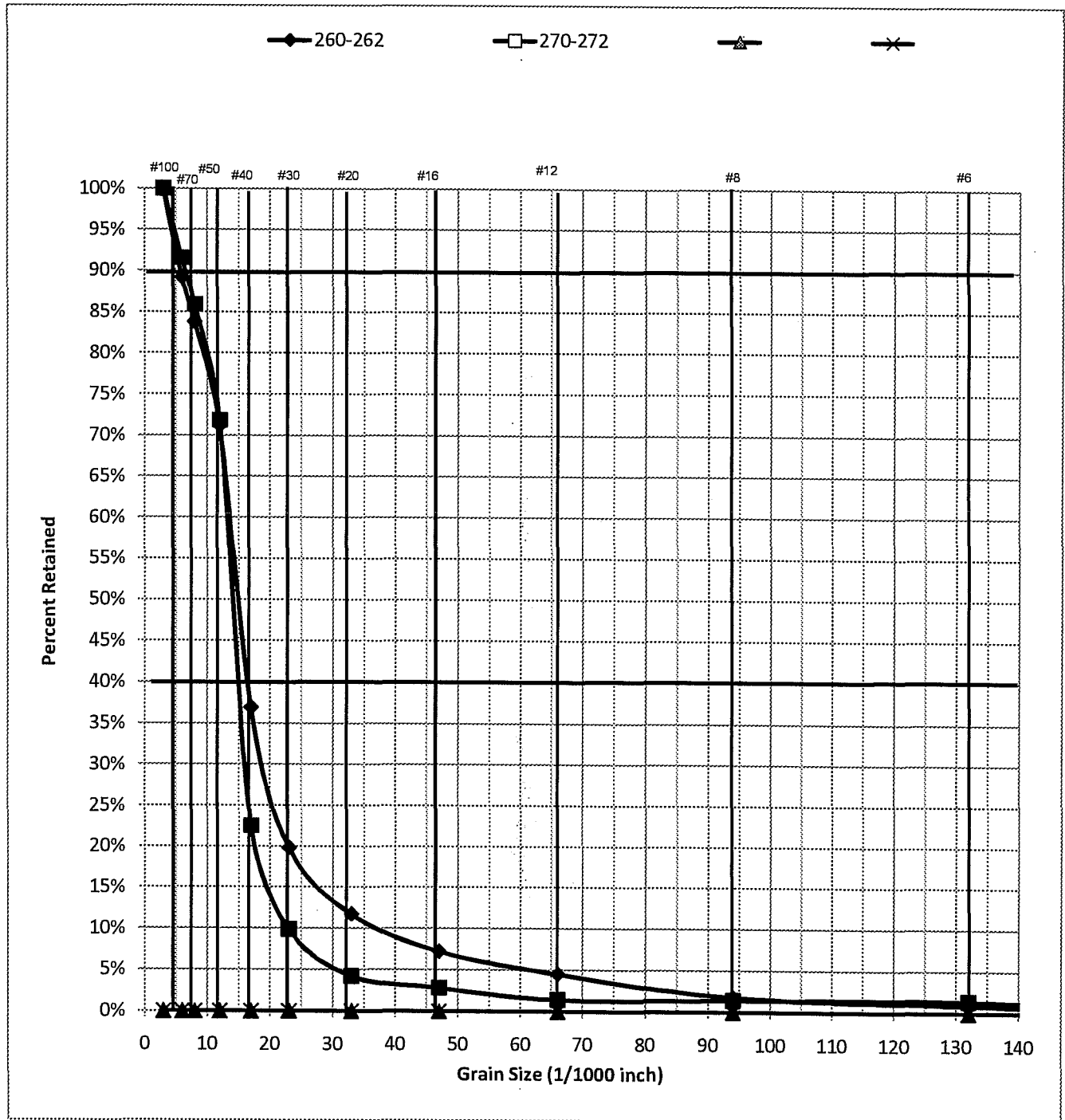


Project: Old Roosevelt Field
Engineer: CDM

Sieve Analysis ID # 051810-1
Well:
Contractor: Uni-Tech Drilling
Desired Yield - 200 GPM, SWL - 30-40'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 20 Slot From 210'-270' (Proposed)
Recommended Gravel Pack: #0 Morie

No Test 215-217, 225-227, 230-232 (Clay)
235-237 & 245-247 (mostly Clay)



Project: Old Roosevelt Field
Engineer: CDM

Sieve Analysis ID # 051810-1

Well:

Contractor: Uni-Tech Drilling
Desired Yield - 200 GPM, SWL - 30-40'

Proposed Screen Diameter: 8" Pipe Size

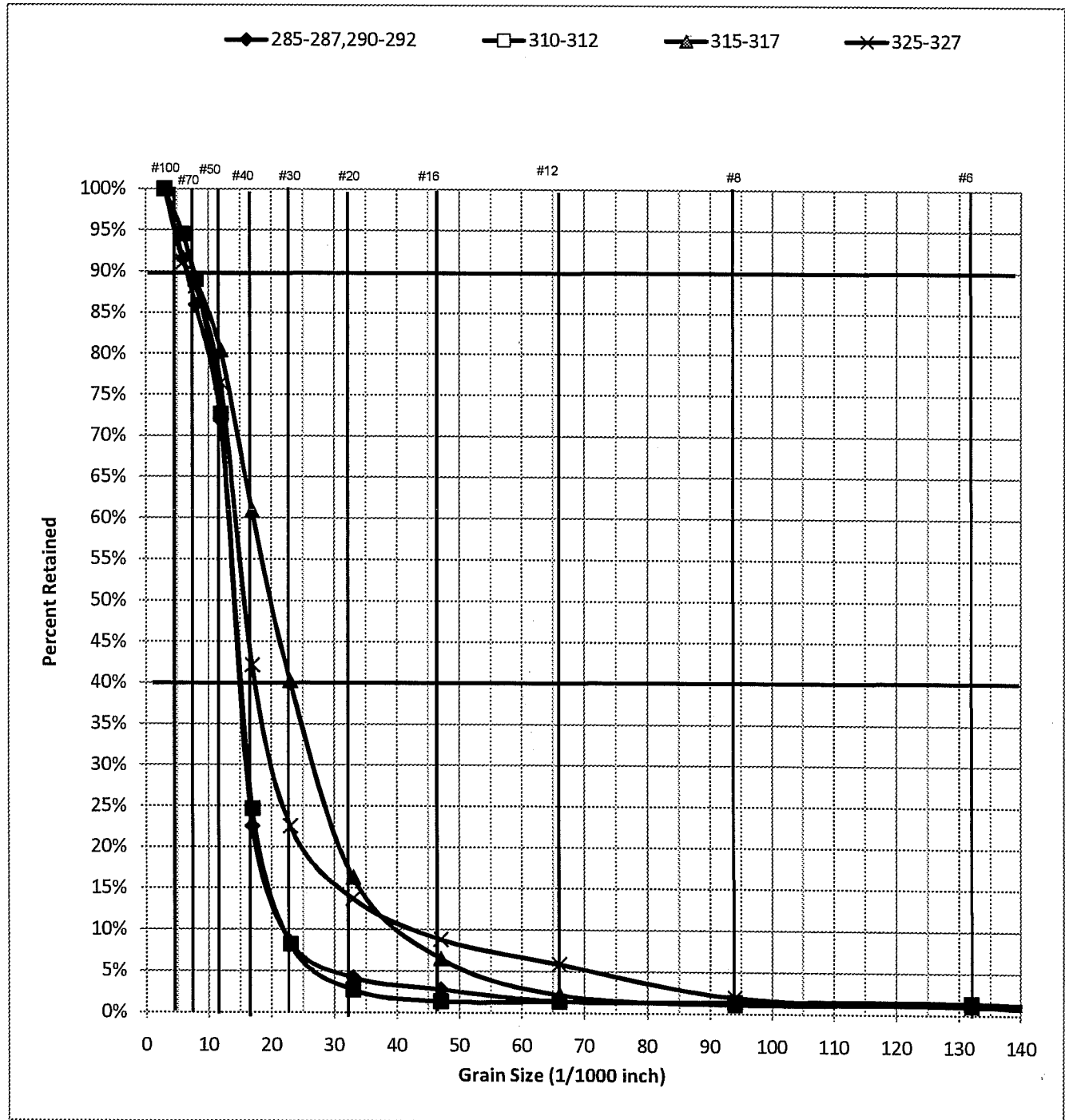
Recommended Slot Size: 20 Slot From 210'-270' (Proposed) No Test 215-217, 225-227, 230-232 (Clay)

Recommended Gravel Pack: #0 Morie

235-237 & 245-247 (mostly Clay)

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.



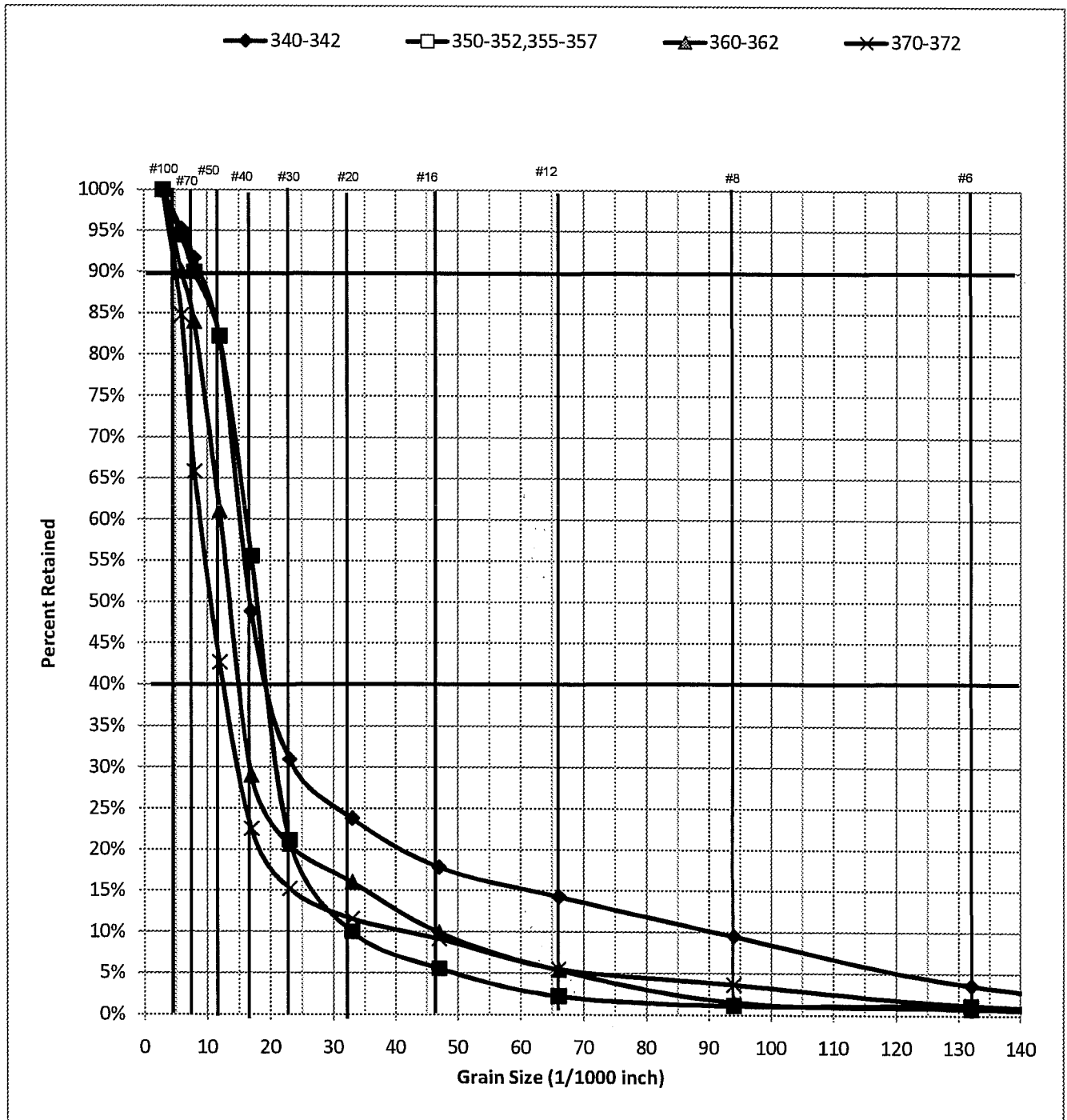
Project: Old Roosevelt Field
Engineer: CDM

Sieve Analysis ID # 051810-1
Well:
Contractor: Uni-Tech Drilling
Desired Yield - 200 GPM, SWL - 30-40'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 30 Slot From 280'-340' (Proposec No Test 280-282,295-297 (Clay)
Recommended Gravel Pack: #1 Morie

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.



Sieve Analysis ID # 051810-1

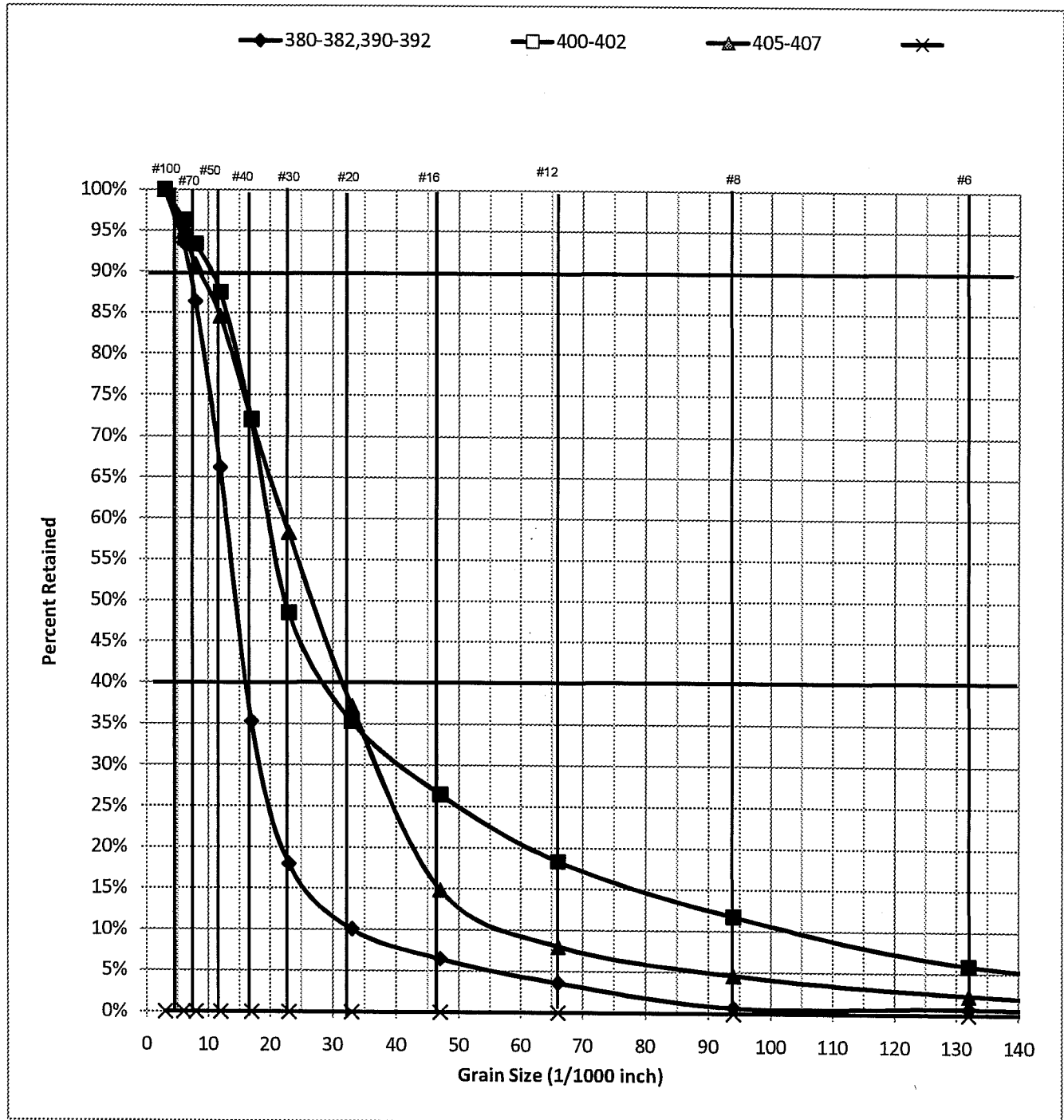
Project: Old Roosevelt Field
Engineer: CDM

Well:
Contractor: Uni-Tech Drilling
Desired Yield - 200 GPM, SWL - 30-40'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 20 Slot From 350'-410' (Proposec No Test 410-412 (Clay)
Recommended Gravel Pack: #0 Morie

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.



Project: Old Roosevelt Field
Engineer: CDM

Sieve Analysis ID # 051810-1
Well:
Contractor: Uni-Tech Drilling
Desired Yield - 200 GPM, SWL - 30-40'

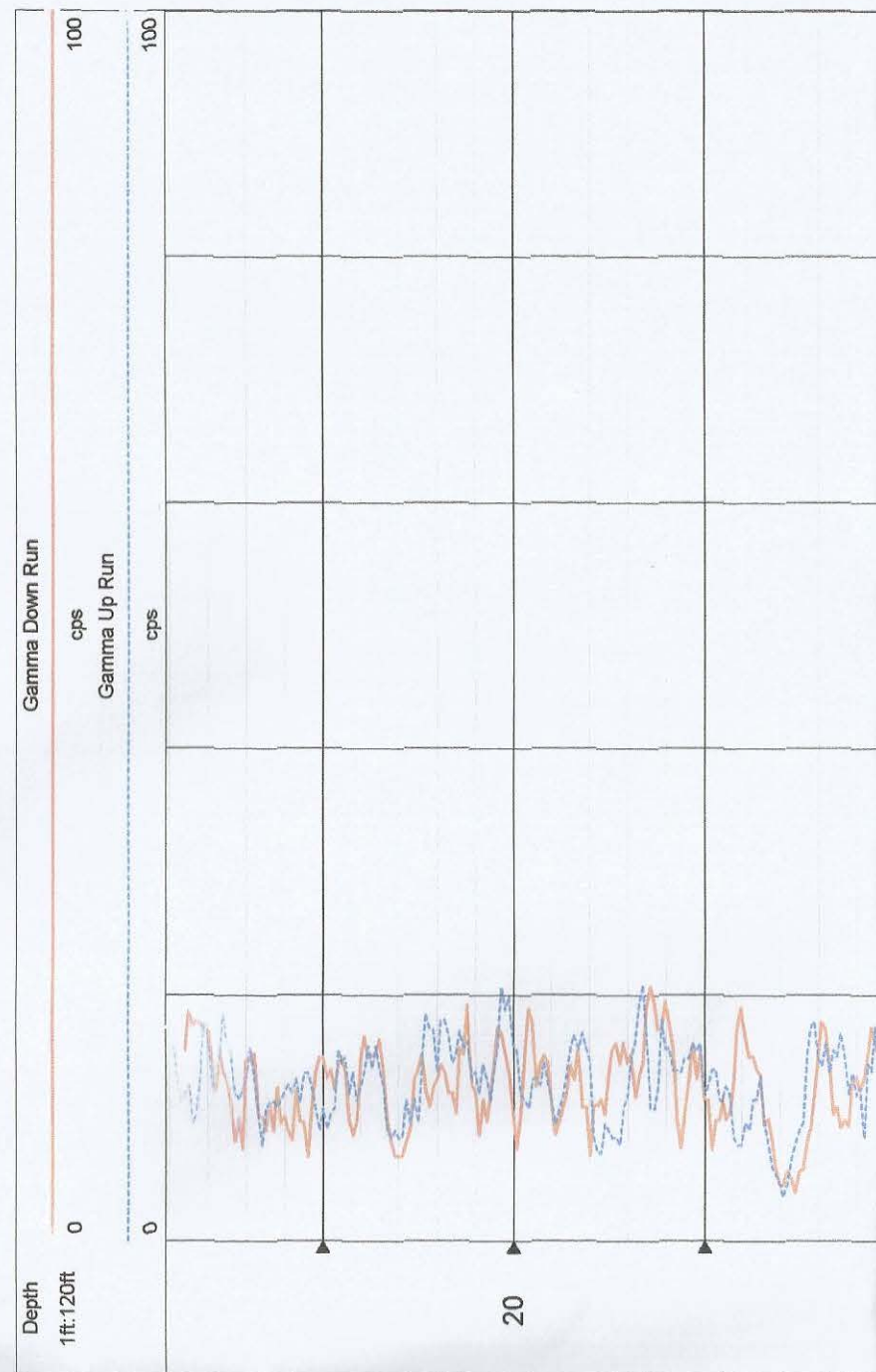
Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 20 Slot From 350'-410' (Proposec No Test 410-412 (Clay)
Recommended Gravel Pack: #0 Morie

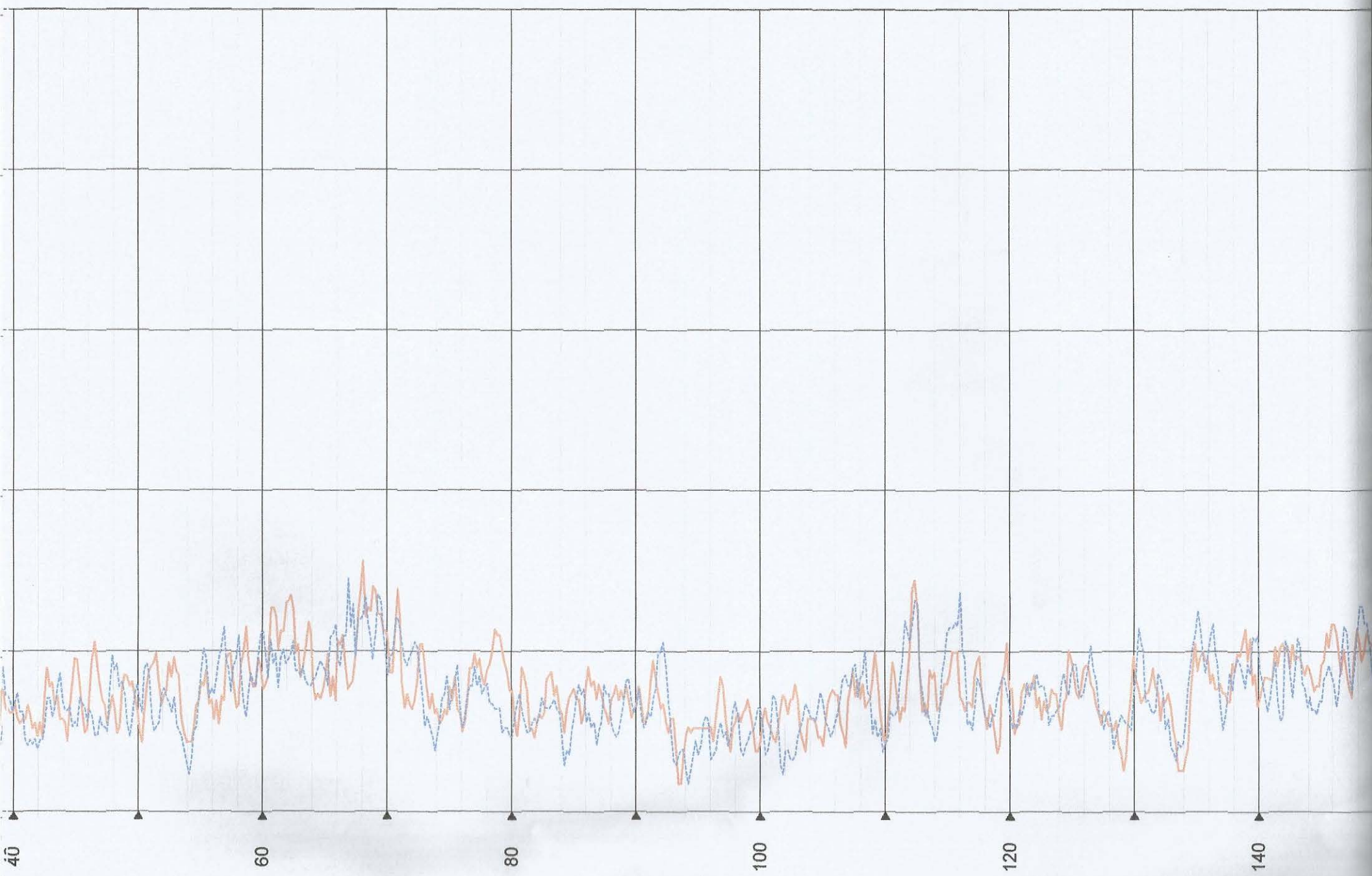
Prepared By: Al Smith
651-638-3160

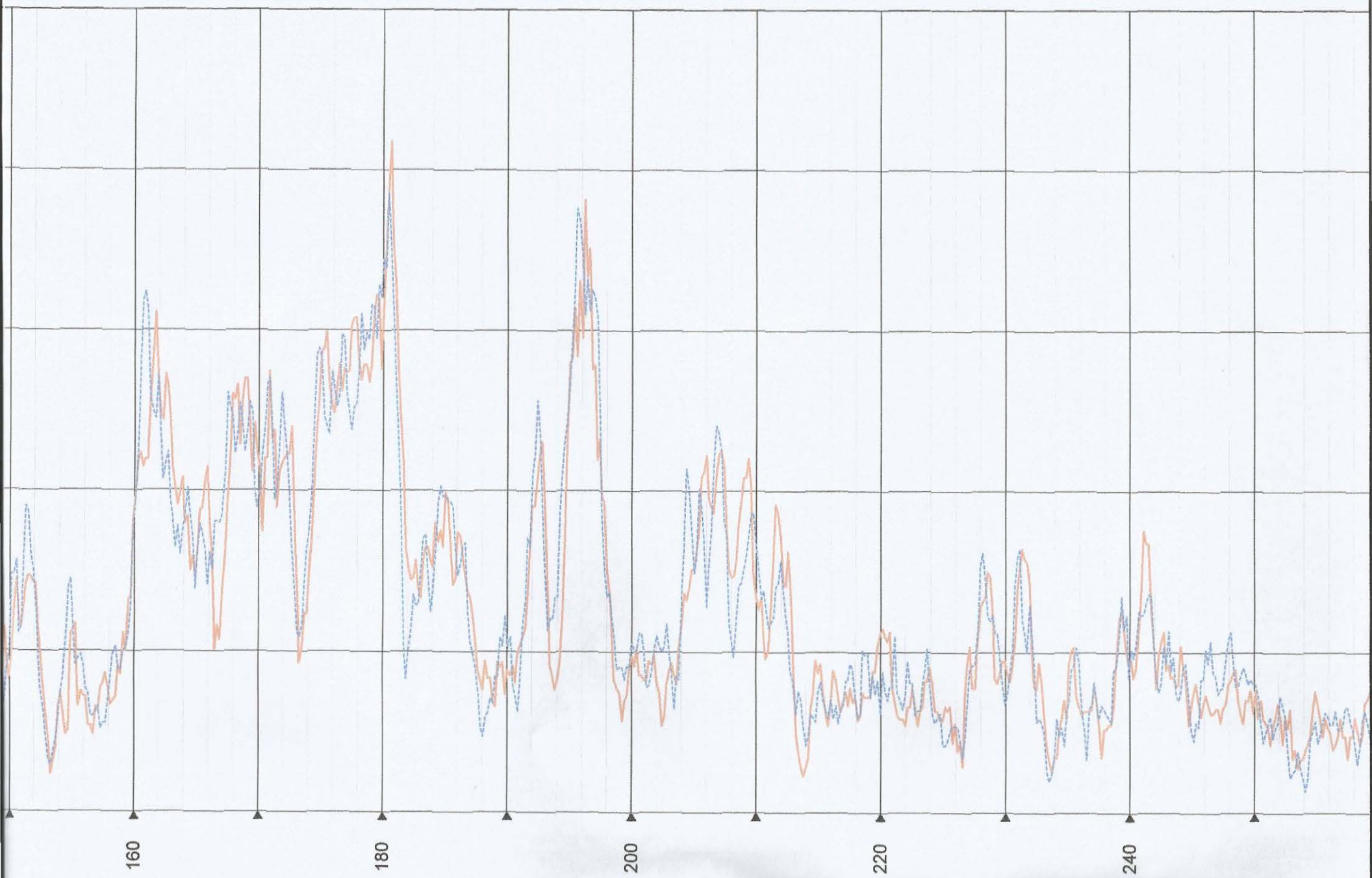
Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.

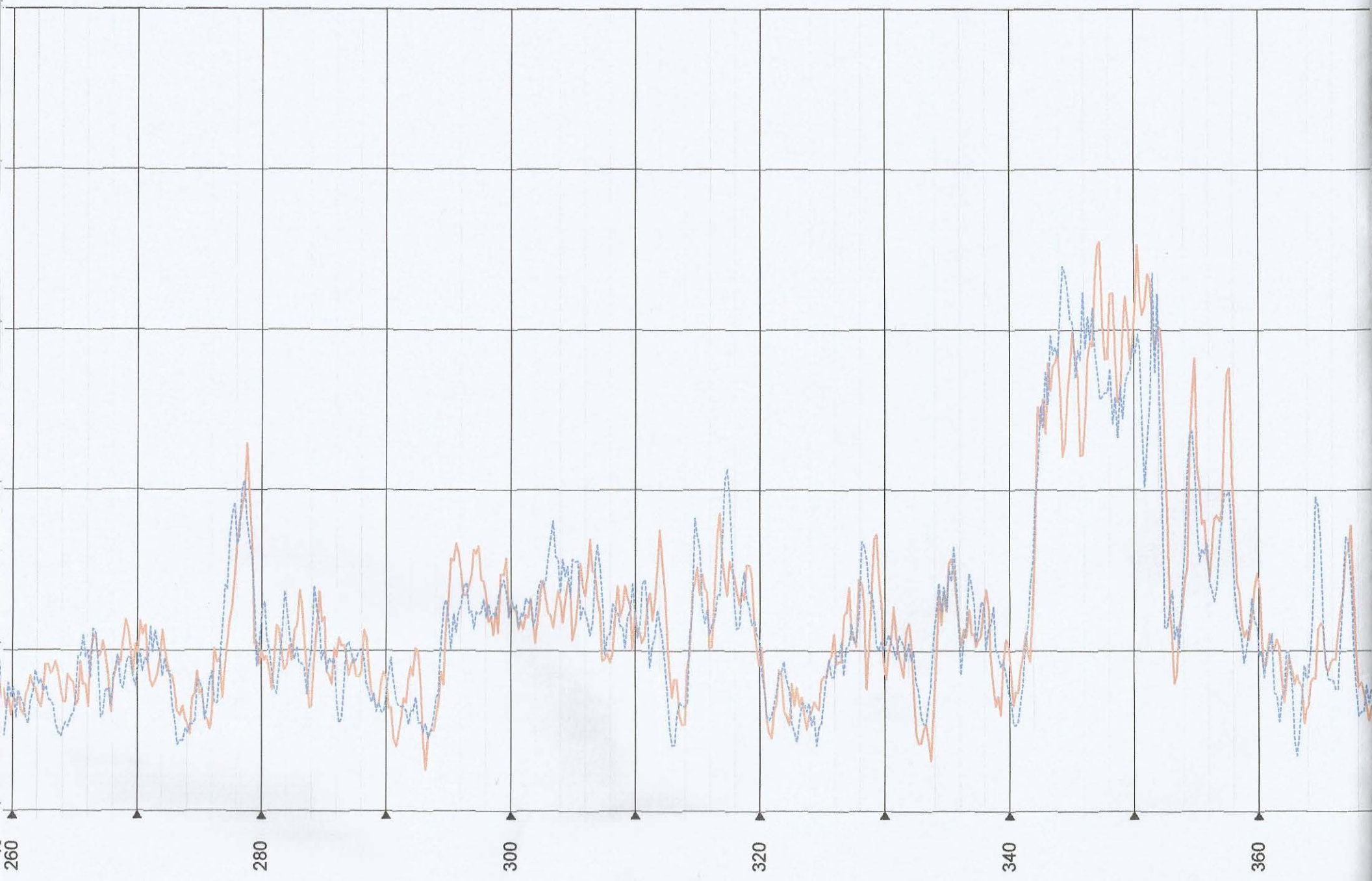
AQUA TERRA GEOPHYSICS INC.
13 Station Court, Bellport NY 11713
631.286.7699

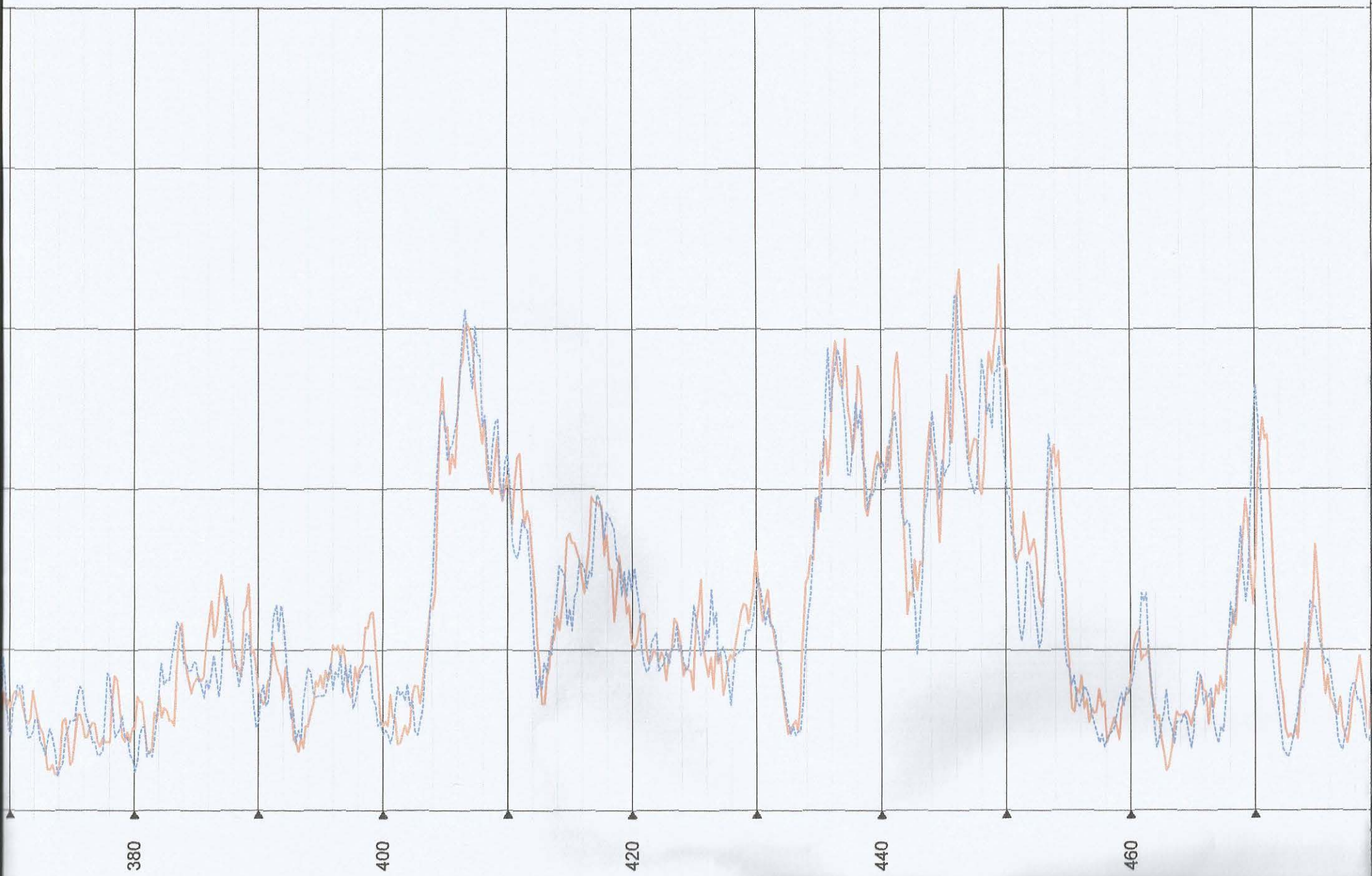
| CO WELL FLD CTY STE FILING No | COMPANY UNITECH DRILLING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------|------------------|-------------|--------------------|----------------|-----------|-------------|-----------------|--|--|--|---------------|--|--|--|---------|-----|------|----|------|------|------|----|--|---------|--------|----------|---------|-------|--------|----------|--|-----------|----------|-------------|------------|------------|--------|-------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | WELL ID TB - 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | FIELD OLD ROOSEVELT FIELD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TOWN GARDEN CITY | | | | STATE NEW YORK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOCATION 40.730 N 73.618 W | | | | OTHER SERVICES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEC | | TWP | | RGE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOGGING SPEED | | 20 FEET / MINUTE | | ELEVATION | | COMMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOG MEAS. FROM | | GROUND SURFACE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRILLING MEAS. FROM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATE | | DECEMBER 4, 2012 | | TYPE FLUID IN HOLE | | BENTONITE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRILLING CO. | | | | SALINITY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TYPE LOG | | | | CONDUCTIVITY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEPTH-DRILLER | | 555 FEET | | LEVEL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEPTH-LOGGER | | 553 FEET | | MAX. REC. TEMP. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BTM LOGGED INTERVAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOP LOGGED INTERVAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OPERATING RIG TIME | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RECORDED BY | | BENJAMIN RICE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WITNESSED BY | | MIKE EHNOT CDM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th colspan="4">BOREHOLE RECORD</th> <th colspan="4">CASING RECORD</th> </tr> <tr> <th>RUN NO.</th> <th>BIT</th> <th>FROM</th> <th>TO</th> <th>SIZE</th> <th>WGT.</th> <th>FROM</th> <th>TO</th> </tr> </thead> <tbody> <tr> <td></td> <td>20 INCH</td> <td>0 FEET</td> <td>112 FEET</td> <td>16 INCH</td> <td>STEEL</td> <td>0 FEET</td> <td>112 FEET</td> </tr> <tr> <td></td> <td>8.75 INCH</td> <td>112 FEET</td> <td>TOTAL DEPTH</td> <td>2 7/8 INCH</td> <td>DRILL PIPE</td> <td>0 FEET</td> <td>TOTAL DEPTH</td> </tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> | | | | | | | | BOREHOLE RECORD | | | | CASING RECORD | | | | RUN NO. | BIT | FROM | TO | SIZE | WGT. | FROM | TO | | 20 INCH | 0 FEET | 112 FEET | 16 INCH | STEEL | 0 FEET | 112 FEET | | 8.75 INCH | 112 FEET | TOTAL DEPTH | 2 7/8 INCH | DRILL PIPE | 0 FEET | TOTAL DEPTH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOREHOLE RECORD | | | | CASING RECORD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RUN NO. | BIT | FROM | TO | SIZE | WGT. | FROM | TO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 20 INCH | 0 FEET | 112 FEET | 16 INCH | STEEL | 0 FEET | 112 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8.75 INCH | 112 FEET | TOTAL DEPTH | 2 7/8 INCH | DRILL PIPE | 0 FEET | TOTAL DEPTH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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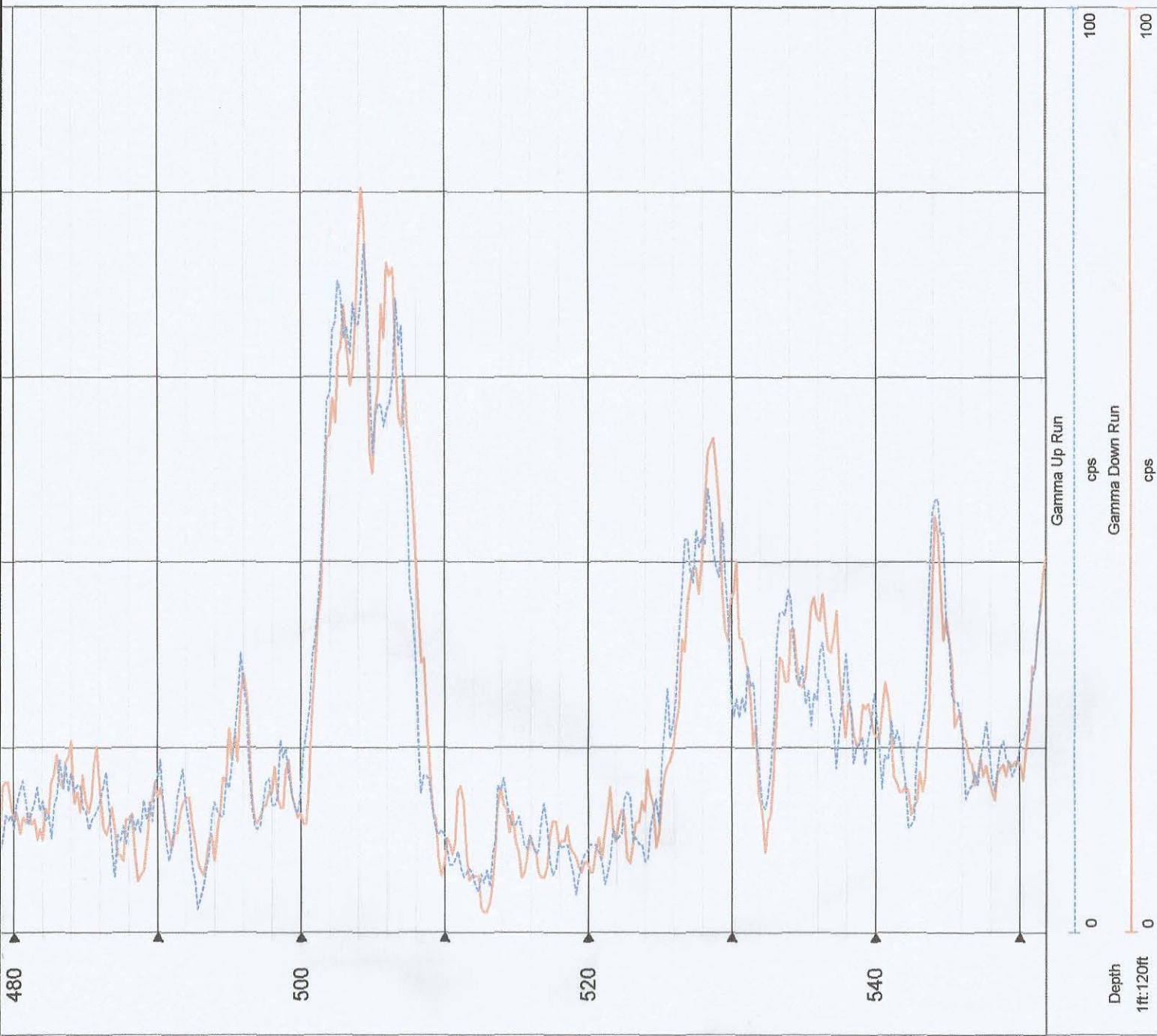


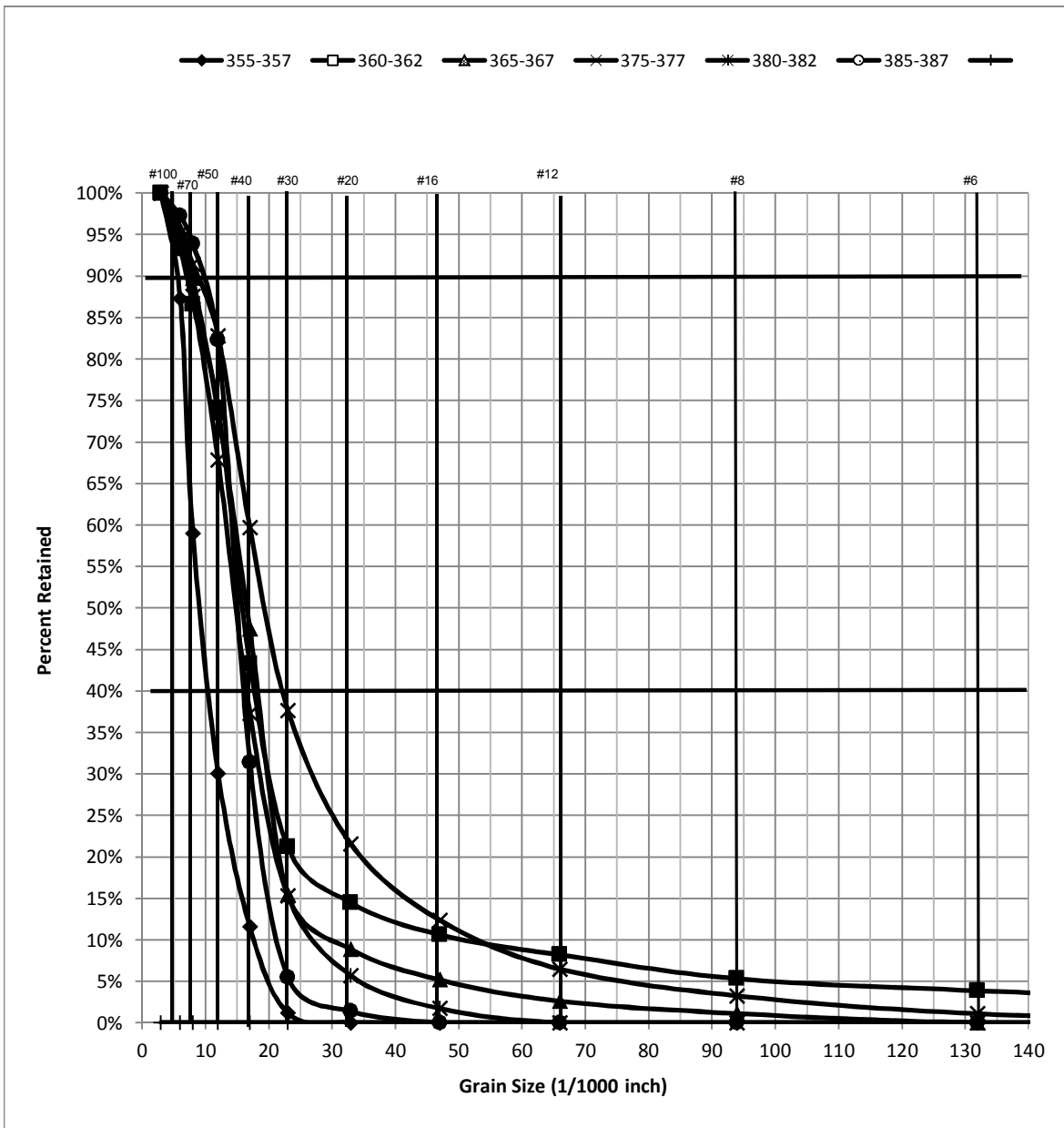












Job Name Old Roosevelt Extraction TB-1

Location Garden City, NY

Driller Uni-Tech Drilling

Casing ϕ 8"

Screen ϕ 8" Pipe Size

Recommended Slot Size 20 Slot

Recommended Gravel Pack #0 Morie

Sample ID 120312-1

Analyzed by: Al Smith, 651-638-3160

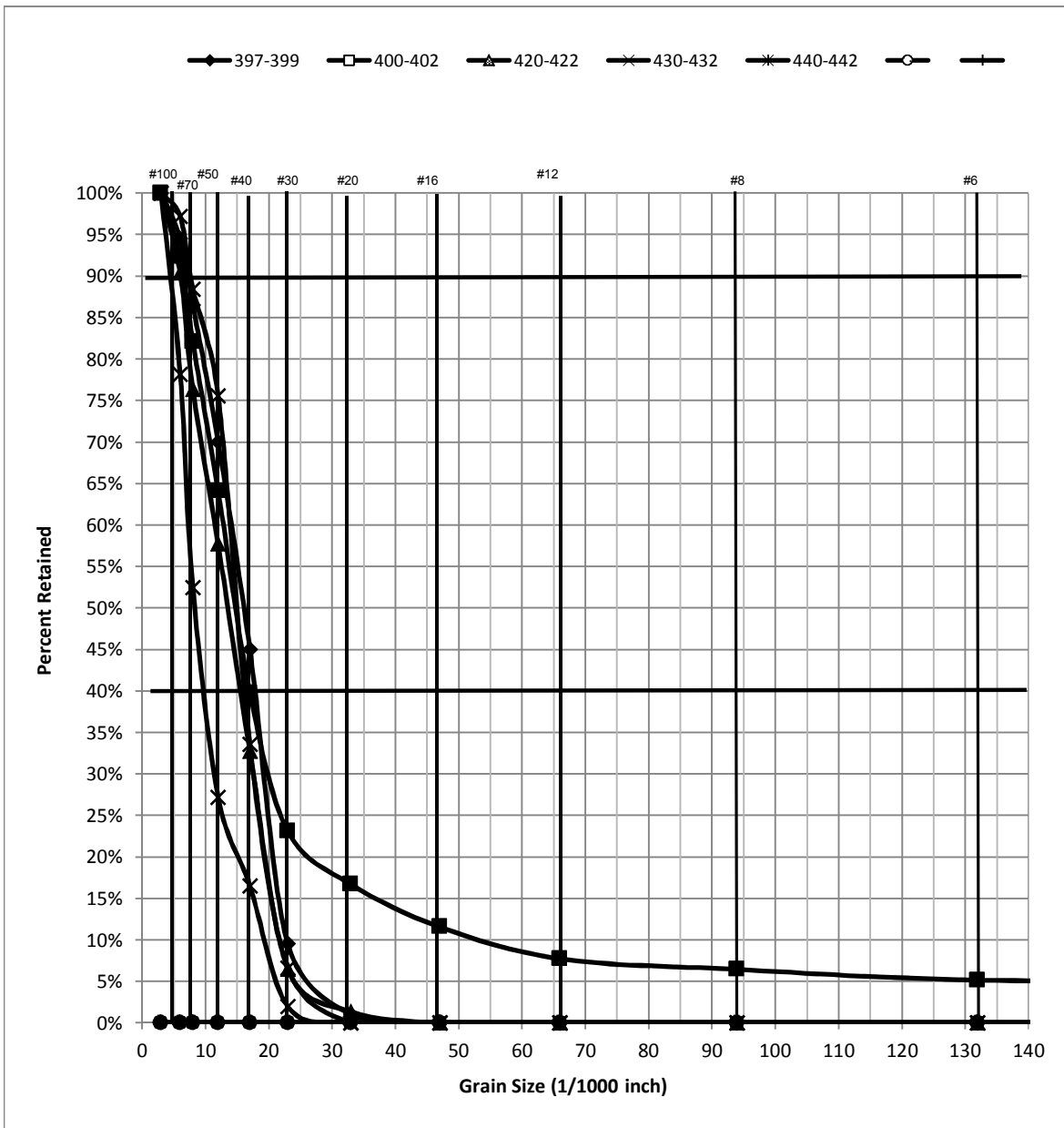
Date: 12/3/2012

No Test 350-352, 370-372, 390-392, 405-407, 450-452 (Clay)

Yield 100 GPM

SWL (ft) 80'

Based exclusively on the samples provided by the contractor, a sieve analysis graph and suggested screen slot size is provided as requested. Since numerous construction considerations and site circumstances influence successful well completion, Johnson Screens assumes no responsibility for final well performance nor awareness of local regulations pertaining to well installations.



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Analyzed by: Al Smith, 651-638-3160

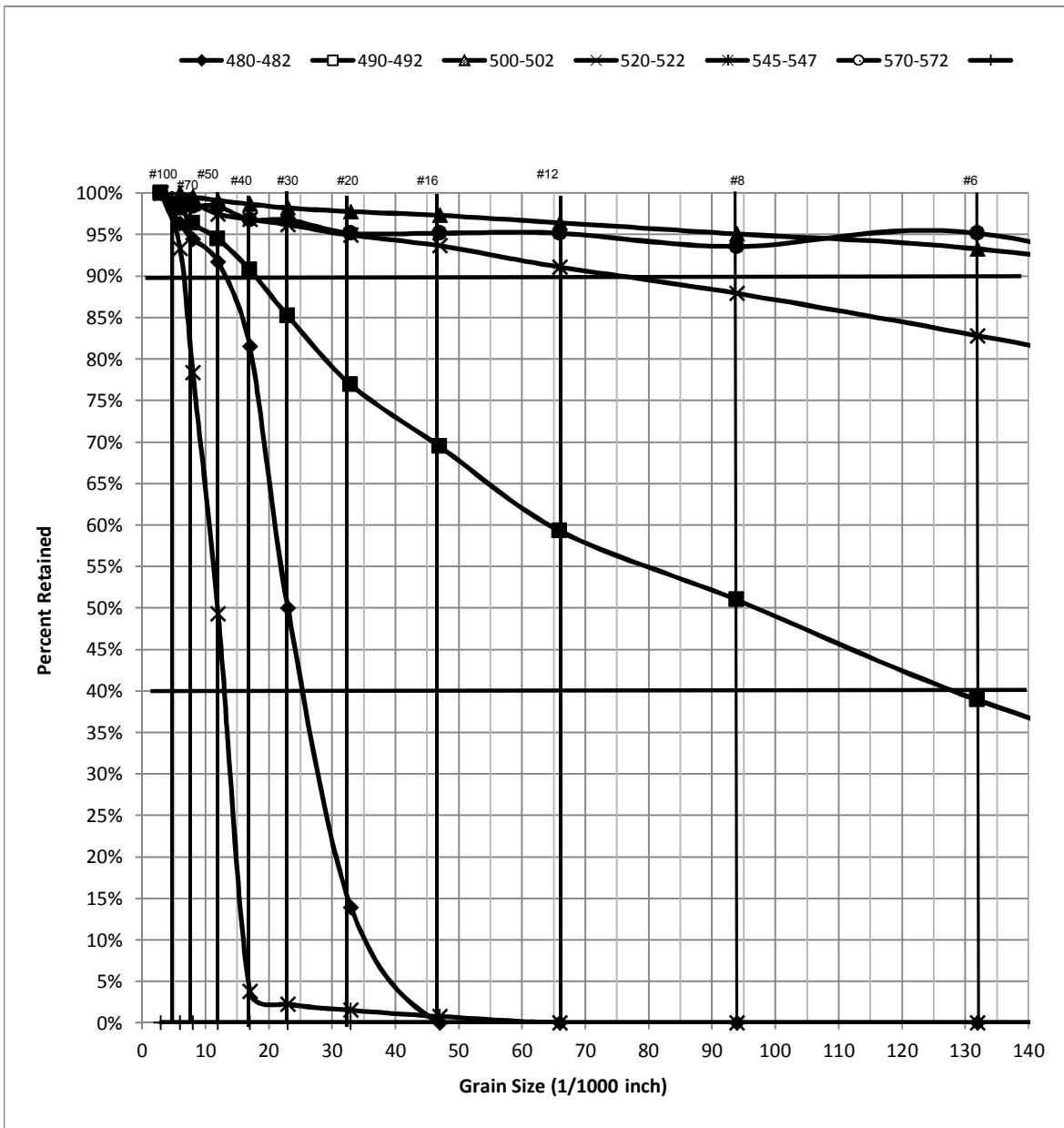
Date: 12/3/2012

No Test 350-352, 370-372, 390-392, 405-407, 450-452 (Clay)

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Recommended Gravel Pack #0 Morie

Sample ID 120312-1

Analyzed by: Al Smith, 651-638-3160

Date: 12/3/2012

No Test 455-457, 470-472, 530-532, 540-542, 550-552 (Clay)

Yield 100 GPM

SWL (ft) 80'

Based exclusively on the samples provided by the contractor, a sieve analysis graph and suggested screen slot size is provided as requested. Since numerous construction considerations and site circumstances influence successful well completion, Johnson Screens assumes no responsibility for final well performance nor awareness of local regulations pertaining to well installations.